

THE BEAVER EXCAVATING COMPANY

4650 SOUTHWAY S. W.
P.O. BOX 6059
CANTON, OHIO 44706
(330) 478-2151



FAX NUMBER (330) 478-2122

DATE: 3-12-98NUMBER OF PAGES BEING
SENT 3 INCLUDING
THIS ONE.

TO: KEITH HOUSEKNECHT
COMPANY: CDX
FROM: STAN EVANS

THE ORIGINAL OF THIS TRANSMITTAL WILL BE SENT BY:
() REGULAR MAIL () OVERNIGHT MAIL

(X) THIS WILL BE THE ONLY FORM OF DELIVERY OF THIS TRANSMITTAL

RE: KEITH

ATTACHED, INVOICE TO DATE &
INVOICE AS REQUESTED, TO SHOW THE
DIFFERENCE.

ACTUAL COST ON RIP-RAP WAS 675.00
& ON ONE CATCH BASIN WAS 1283.00
+ MATERIALS FOR LAST CATCH BASIN 281.00
OR 1564.00, I INVOICED 1560.00. ACTUAL
COST ON BOTH CATCH BASINS WILL BE
BETWEEN 2600-4300.00, IF LESS I WILL
OWE YOU CREDIT.

REGRADE BIOCELL IS 1912.00 AS BID,
I THINK THIS IS CLOSE, BUT OVER OR
UNDER WE'LL WORK OUT LATER.

LET ME KNOW WHICH TO INVOICE.

OUR ACCOUNTING DEPARTMENT IS CHECKING
EXTENSIONS & WILL BE DONE BY THE TIME
YOU CONTACT ME.

IF YOU DO NOT RECEIVE ANY OF THESE PAGES, PLEASE CONTACT US
AT (330) 478-2151 AS SOON AS POSSIBLE.

THANK YOU

ALL BACKUP WILL COME WITH
INVOICE. THIS IS PENDING
PES APPROVAL. 2

STAN EVANS

CDF000703A

Lagoon #1 Reconstruction Project					Beaver Invoicing								
PO # 099510					Quantity	Invoice	Extended			Quantity	Invoice	Extended	
PO Total \$219,610.20					To	Quantity	Total	1st Billing		To	Quantity	Total	2nd Billing
Bid Item	Description	Unit	Quantity	Unit Price	Total Price	Date							
1	Insurance, Fees, and Permits	LS	1										
2	Performance Bond	LS	1	\$2,200.00	\$2,200.00	1	1	\$2,200.00	\$2,200.00	1		\$2,200.00	
3	Mobilization / Demobilization	LS	1	\$18,635.00	\$18,635.00	0.67	0.67	\$12,485.45	\$12,485.45	1	0.33	\$18,635.00	\$6,149.55
4	Demolition and Site Preparation	LS	1	\$5,715.00	\$5,715.00	1	1	\$5,715.00	\$5,715.00	1		\$5,715.00	
5	Excavation / Backfill of Frenches/ Foundations	LS	1	\$1,082.00	\$1,082.00					1	1	\$1,082.00	\$1,082.00
6	Sewer Line Installation		1										
	8" Gravity Sewer	LS	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	4" Pressure Sewer	LS	1	\$24,528.00	\$24,528.00	0.85	0.85	\$20,848.80	\$20,848.80	1	0.15	\$24,528.00	\$3,679.20
	Modify Pipes in Lagoon	LS	1	\$2,294.80	\$2,294.80	0.5	0.5	\$1,147.40	\$1,147.40	1	0.5	\$2,294.80	\$1,147.40
7	Paving Replacement	LS	1	\$2,739.00	\$2,739.00	1	1	\$2,739.00	\$2,739.00	1		\$2,739.00	
8	Concrete Foundations	LS	1	\$2,714.00	\$2,714.00					1	1	\$2,714.00	\$2,714.00
9	Oil-Impacted Soil Removal, Stabilization, Re-Grading, Placement and Compacting in Lagoon No. 1												
				\$38,925.40									
	Dewater Lagoon	LS	1	\$3,481.90	\$3,481.90	1	1	\$3,481.90	\$3,481.90	1		\$3,481.90	
	Regrade Lagoon	CY	333	\$29.50	\$9,823.50	215	161	\$6,342.50	\$4,749.50		215	\$6,342.50	
	Soil Stabilization	CY	800	\$42.70	\$25,620.00	300	300	\$12,810.00	\$12,810.00		300	\$12,810.00	
10	Oil-Impacted Soil Shredding, Screening, and Stabilization	CY	3000	\$10.69	\$32,080.00	3205	3000	\$34,250.77	\$32,060.00		3624	\$38,728.48	\$6,668.48
11	Lower / Upper Clay Layer Placement and Compacting	CY	1088	\$42.25	\$45,968.00	508	508	\$21,463.00	\$21,463.00		1311	\$55,388.75	\$33,926.75
12	Stabilized Soil Placement and Compacting	CY	3000	\$11.72	\$35,160.00	3205	3000	\$37,562.60	\$35,160.00		3624	\$42,473.28	\$7,313.28
13	Owner - Furnished Equipment Installation	LS	1	\$946.00	\$946.00					1	1	\$946.00	\$946.00
14	Finish Grading, Walkways, Seeding	LS	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15	Electrical	LS	1	\$5,873.00	\$5,873.00					1	1	\$5,873.00	\$5,873.00
16	Facility Commissioning / Start-up	LS	1	\$770.00	\$770.00					1	1	\$770.00	\$770.00
17	Recap on banks	CY	26	\$75.00	\$1,950.00					9	9	\$675.00	\$675.00
18	Trace tape & insulation	LS	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19	Arterial piping & bypass valves	LS	1	\$1,008.00	\$1,008.00					1	1	\$1,008.00	\$1,008.00
20	On-borrow embankment	CY	1080	\$12.72	\$13,737.60					929	929	\$11,816.88	\$11,816.88
21	Catch basins	EA	2	\$1,500.00	\$3,000.00					2	2	\$3,000.00	\$3,000.00
22	Bypass valve on suction line	LS	1	\$322.00	\$322.00	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
23	Replace suction piping	LS	1	\$644.00	\$644.00	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
24	Replace biocell	LS	1	\$1,912.00	\$1,912.00					1	1	\$1,912.00	\$1,912.00
25	Replace reducer	LS	1	\$81.00	\$81.00	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
26	Install suction nozzle & screen	LS	1	\$108.00	\$108.00					1	1	\$108.00	\$108.00
27	Install blind flange at suction valve	LS	1	\$27.00	\$27.00					1	1	\$27.00	\$27.00
28	Remove flapper valve in pump	LS	1	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
29	Install exchange motor on pump	LS	1	\$231.00	\$231.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
30	Install float switch	LS	1	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
TOTAL ORIGINAL					\$219,610.20	Total Job to date = \$161,046.42				Total Job to date = \$245,269.69			
						Total this Invoice = \$154,850.05				Total this Invoice = \$88,816.54			

* PES participation
 ** Beaver & PES participation

INVOICE TO DATE

Lagoon #1 Reconstruction Project					Beaver Invoicing								
PO # 099510					Quantity To Date	Invoice Quantity	Extended Total	1st Billing		Quantity To Date	Invoice Quantity	Extended Total	2nd Billing
PO Total \$219,610.20													
Bid Item Description	Unit	Quantity	Beaver Bid	Adjusted Unit Price	Total Price								
1 Insurance, Fees, and Permits	LS	1											
2 Performance Bond	LS	1	\$2,200.00		\$2,200.00	1	1	\$2,200.00	\$2,200.00	1		\$2,200.00	
3 Mobilization / Demobilization	LS	1	\$18,635.00		\$18,635.00	0.67	0.67	\$12,485.45	\$12,485.45	1	0.33	\$18,635.00	\$8,149.55
4 Demolition and Site Preparation	LS	1	\$5,715.00		\$5,715.00	1	1	\$5,715.00	\$5,715.00	1		\$5,715.00	
5 Excavation / Backfill of Trenches / Foundations	LS	1	\$1,082.00		\$1,082.00					1	1	\$1,082.00	\$1,082.00
6 Sewer Line Installation		1											
8" Gravity Sewer	LS	1	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4" Pressure Sewer	LS	1	\$24,528.00		\$24,528.00	0.85	0.85	\$20,848.80	\$20,848.80	1	0.15	\$24,528.00	\$3,679.20
Modify Pipes in Lagoon	LS	1	\$2,294.80		\$2,294.80	0.5	0.5	\$1,147.40	\$1,147.40	1	0.5	\$2,294.80	\$1,147.40
7 Paving Replacement	LS	1	\$2,739.00		\$2,739.00	1	1	\$2,739.00	\$2,739.00	1		\$2,739.00	
8 Concrete Foundations	LS	1	\$2,714.00		\$2,714.00					1	1	\$2,714.00	\$2,714.00
9 Oil-Impacted Soil Removal, Stabilization, Re-Grading, Placement and Compacting in Lagoon No. 1													
			\$38,925.40										
Dewater Lagoon	LS	1	\$3,481.90		\$3,481.90	1	1	\$3,481.90	\$3,481.90	1		\$3,481.90	
Regrade Lagoon	CY	333	\$29.50		\$9,823.50	215	161	\$6,342.50	\$4,749.50	215		\$6,342.50	
Soil Stabilization	CY	600	\$42.70		\$25,620.00	300	300	\$12,810.00	\$12,810.00	300		\$12,810.00	
10 Oil-Impacted Soil Shredding, Screening, and Stabilization	CY	3000	\$10.69		\$32,060.00	3205	3000	\$34,250.77	\$32,060.00	3624	624	\$38,728.48	\$6,668.48
11 Lower / Upper Clay Layer Placement and Compacting	CY	1088	\$42.25		\$45,968.00	508	508	\$21,463.00	\$21,463.00	1311	803	\$55,389.75	\$33,926.75
12 Stabilized Soil Placement and Compacting	CY	3000	\$11.72		\$35,160.00	3205	3000	\$37,562.60	\$35,160.00	3624	624	\$42,473.28	\$7,313.28
13 Owner - Furnished Equipment Installation	LS	1	\$946.00		\$946.00					1	1	\$946.00	\$946.00
14 Finish Grading, Walkways, Seeding	LS	1	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15 Electrical	LS	1	\$5,873.00		\$5,873.00					1	1	\$5,873.00	\$5,873.00
16 Facility Commissioning / Start-up	LS	1	\$770.00		\$770.00					1	1	\$770.00	\$770.00
17 Rip-Rap on banks	CY	26	\$75.00		\$1,950.00					9	9	\$675.00	\$675.00
18 Heat trace tape & insulation	LS	1	N/A		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19 Additional piping & bypass valves	LS	1	\$1,008.00		\$1,008.00					1	1	\$1,008.00	\$1,008.00
20 Offsite borrow embankment	CY	1080	\$12.72		\$13,737.60					929	929	\$11,816.88	\$11,816.88
21 Catch basins	EA	2	\$1,560.00		\$3,000.00					1.04	1.04	\$1,560.00	\$1,560.00
22 Bypass valve on suction line	LS	1	\$322.00		\$322.00	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
23 Revise suction piping	LS	1	\$644.00		\$644.00	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
24 Regrade biocell	LS	1	\$1,912.00		\$1,912.00								
25 Replace reducer	LS	1	\$81.00		\$81.00	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
26 Install suction nozzle & screen	LS	1	\$108.00		\$108.00								
27 Install blind flange at suction valve	LS	1	\$27.00		\$27.00								
28 Remove flapper valve in pump	LS	1	N/C		N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
29 Install exchange motor on pump	LS	1	\$231.00		\$231.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
30 Install float switch	LS	1	N/C		N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C	N/C
TOTAL ORIGINAL					\$219,610.20	Total Job to date = \$161,046.42				Total Job to date = \$241,782.59			
						Total this Invoice = \$154,860.05				Total this Invoice = \$86,329.54			

* PES participation
** Beaver & PES participation

INVOICE AS REQUESTED

Kaath

Lagoon #1 Reconstruction Project PO # 099510 PO Total \$219,610.20					Beaver Invoicing									
Bid Item Description	Unit	Quantity	Unit Price	Total Price	Quantity To Date	Invoice Quantity	Extended Total	1st Billing		Quantity To Date	Invoice Quantity	Extended Total	2nd Billing	
1 Insurance, Fees, and Permits	LS	1												
2 Performance Bond	LS	1	\$2,200.00	\$2,200.00	1	1	\$2,200.00	\$2,200.00		1		\$2,200.00		
3 Mobilization / Demobilization	LS	1	\$18,635.00	\$18,635.00	0.67	0.67	\$12,485.45	\$12,485.45		1	0.33	\$18,635.00	\$6,149.55	
4 Demolition and Site Preparation	LS	1	\$5,715.00	\$5,715.00	1	1	\$5,715.00	\$5,715.00		1		\$5,715.00		
5 Excavation / Backfill of Trenches / Foundations	LS	1	\$1,082.00	\$1,082.00						1	1	\$1,082.00	\$1,082.00	
6 Sewer Line Installation		1												
8" Gravity Sewer	LS	1	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	
4" Pressure Sewer	LS	1	\$24,528.00	\$24,528.00	0.85	0.85	\$20,848.80	\$20,848.80		1	0.15	\$24,528.00	\$3,679.20	
Modify Pipes in Lagoon	LS	1	\$2,294.80	\$2,294.80	0.5	0.5	\$1,147.40	\$1,147.40		1	0.5	\$2,294.80	\$1,147.40	
7 Paving Replacement	LS	1	\$2,739.00	\$2,739.00	1	1	\$2,739.00	\$2,739.00		1		\$2,739.00		
8 Concrete Foundations	LS	1	\$2,714.00	\$2,714.00						1	1	\$2,714.00	\$2,714.00	
9 Oil-Impacted Soil Removal, Stabilization, Re-Grading, Placement and Compacting in Lagoon No. 1			\$3,925.40											
Dewater Lagoon	LS	1	\$3,481.90	\$3,481.90	1	1	\$3,481.90	\$3,481.90		1		\$3,481.90		
Regrade Lagoon	CY	333	\$29.50	\$9,823.50	215	161	\$6,342.50	\$4,749.50		215		\$6,342.50		
Soil Stabilization	CY	600	\$42.70	\$25,620.00	300	300	\$12,810.00	\$12,810.00		300		\$12,810.00		
10 Oil-Impacted Soil Shredding, Screening, and Stabilization	CY	3000	\$10.69	\$32,060.00	3205	3000	\$34,250.77	\$32,060.00		3610	610	\$38,578.87	\$6,518.87	
11 Lower / Upper Clay Layer Placement and Compacting	CY	1088	\$42.25	\$45,968.00	508	508	\$21,463.00	\$21,463.00		1342	834	\$56,699.50	\$35,236.50	
12 Stabilized Soil Placement and Compacting	CY	3000	\$11.72	\$35,160.00	3205	3000	\$37,562.60	\$35,160.00		3610	610	\$42,309.20	\$7,149.20	
13 Owner - Furnished Equipment Installation (Pump)	LS	1	\$946.00	\$946.00						1	1	\$946.00	\$946.00	
14 Finish Grading, Walkways, Seeding	LS	1	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	
15 Electrical	LS	1	\$5,873.00	\$5,873.00						1	1	\$5,873.00	\$5,873.00	
16 Facility Commissioning / Start-up	LS	1	\$770.00	\$770.00						1	1	\$770.00	\$770.00	
17 Rip-Rap on banks	CY	26	\$75.00	\$1,950.00						9	9	\$675.00	\$675.00	
18 Heat trace tape & insulation	LS	1	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	
19 Additional piping	LS	1	\$1,008.00	\$1,008.00						1	1	\$1,008.00	\$1,008.00	
20 Offsite borrow embankment	CY	1080	\$12.72	\$13,737.60						912	912	\$11,600.64	\$11,600.64	
21 Catch basins	EA	1								1	1			
22 Revise suction piping	LS	1	\$965.00	\$965.00										
23 Regrade biocell	LS	1	\$1,912.00	\$1,912.00										
24 Replace reducer	LS	1	\$81.00	\$81.00										
25 Install suction nozzle & screen	LS	1	\$108.00	\$108.00										
26 Install blind flange at suction valve	LS	1	\$27.00	\$27.00										
27 Remove flapper valve in pump	LS	1	N/C	N/C	N/C	N/C	N/C	N/C		N/C	N/C	N/C	N/C	
28 Install exchange motor on pump	LS	1	\$231.00	\$231.00										
TOTAL ORIGINAL														
					Total Job to date = \$161,046.42				Total Job to date = \$241,002.41					
					Total this Invoice = \$154,860.05				Total this Invoice = \$84,549.36					

219,610.20

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BEAVER EXCAVATING

-3,481
-12,810

+6518.87

+10,751.50

+7,149.20

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FAX NO. 330-482122

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NEED TO CHECK QUANTITIES

GUESS 85,000'-90,000'

86,549.36

3,324.00

244,733.41

→ 89,873.36

CDFO00706

cdf009a.xls

26)
3

ORIGINAL CONTRACT		219,610.20
REGRADE LAGOON LESS CY	-	3,481.00
SOIL STABILIZATION LESS CY	-	12,810.00
OIL-IMPACTED SOIL MORE CY	+	6,518.87
LOWER & UPPER CLAY LAYON MORE CY	+	10,731.50
STABILIZED SOIL PLACEMENT MORE CY	+	7,149.20
RIP RAP ON BANKS	+	675.00
ADDITIONAL (BY PASS) PIPING	+	1,008.00
OFFSITE BORROW (SLOPE CHANGE)	+	11,600.64
		<hr/>
		241,002.41

Coming Soon

KH1118	{ CATCH BASINS	LOT 1900	
		YARD 2000	9120
	SUCTION SCREEN	100	
	BLIND FLANGE	27	

COST APPROVED

ORIGINAL	219,610.20
INCREMENTAL (SLOPE CHANGE)	22,008.00
CATCH BASIN	3,900.00
RIP RAP	2,000.00
BAD WEATHER CONTINGENCY	8,000.00
PUMP CHARGES	1,143.00
TOTAL	256,661.20

3/16/98
KETH
COPY TO P

ORIGINAL CONTRACT	219,610.20
ESTIMATED OVERFLOW	1,833.00
ψ INCREMENTAL COST TO COMPLETE	22,008.00
* PARKING CATCH BASIN	1,900.00
* YARD CATCH BASIN	2,000.00
RIPRAP UNDER PIPES	2,000.00
ELECTRICAL CHANGES	0.00
STORM PIPE CHANGES	0.00
PUMPING & OIL RECOVERY	0.00
EXTRA SOIL REMOVAL & DRY	0.00
SUB TOTAL	\$29,741.00

TOTAL 249,351.20

* BAD WEATHER CONTINGENCY 8,000 BARBER

* PROJECT SUPERVISION 5,990 PARSONS

* BAD WEATHER CONTINGENCY 1,509 PARSONS

ψ +10% ON VOLUMES

* MAX NUMBERS

[Signature]
11/14/97

JERRY
FYE
Keith
2(b)
3

4575 Southway St. S.W.
P.O. Box 6902
Canton, Ohio 44706

Phone: (330) 477-4511
Fax: (330) 477-2046

Canton Drop Forge

Fax

To: ED KARKALIK From: Keith J. Houseknecht
Fax: 216 486-6119 Date: 11/17/97
Phone: _____ Pages: 1
Re: _____ CC: _____
☐ Urgent ☒ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

•Comments:

ED

PLEASE PROCEED WITH LAGOON #1 ASAP.

MY PAPERWORK PLAN IS

- ① RECEIVE FINAL COMMENTS FROM MR CORDIER.
- ② ISSUE A CHANGE ORDER TO BOAVER, TO INCLUDE,
 - a) COST TO COMPLETE BANKS AT 2.5:1 SLOPE
 - b) YARD CATCH BASIN
 - c) PARKING LOT CATCH BASIN
 - d) RIPRAP UNDER PIPES
- ③ ISSUE A PURCHASE ORDER TO PARSONS FOR PROJECT SUPERVISION

Keith

PARSONS ENGINEERING SCIENCE, INC.

A UNIT OF PARSONS INFRASTRUCTURE & TECHNOLOGY GROUP INC

19101 Villaview Road, Suite 301 • Cleveland, Ohio 44119 • (216) 486-9005 • Fax (216) 486-6119
PARESCI/398Dec/EJK8-5

19 March 1998

Mr. Keith Houseknecht
CANTON DROP FORGE, INC.
4575 Southway Street, SW
Canton, Ohio 44706

Reference: Lagoon No. 1 Reconstruction Issues

Dear Keith:

As we discussed in our meeting yesterday (18 March 1998) at your office, Parsons Engineering Science, Inc. (Parsons ES) has incurred incremental costs relative to Lagoon No. 1 reconstruction, which have not yet been addressed. These costs relate to our efforts to conduct the Forensic Review and Analysis of the Upper Clay Layer Installation (as reported on 20 January 1998). The costs include identification of proposed steps required to investigate the potential causes of the slippage, as well as approaches and estimated costs which may be incurred when implementing these proposed approaches. As you will recall, Parsons ES identified the likely cause for the slippage problem, i.e., the fill placed around the drain line installed between the new catch basin and the Lagoon - Item #4 in the "Proposed Course of Action" section of our report.

The following costs were incurred by Parsons ES in analyzing the slope failure, identifying potential causes for same, developing a preferred and an alternate plan for investigating the failure and identifying and estimating costs for potential fixes. A visit to your facility was conducted on 12 January to observe the failure. Subsequently, several telephone calls and facsimiles were completed to review the probable causes and possible means to address the matter. Discussions were conducted with several geotechnical consultants to ensure that we were addressing the correct issues and with the most appropriate approach. Finally, the forensic report was developed and sent to your attention. Subsequently, a different means to physically test the clay layer was identified, priced and proposed to CDF.

All told, Parsons ES expenses for these activities included the following:

9 hours of labor	\$891.92
ODCs	
Mileage	\$ 48.00
Telephone/Fax	\$ 38.62
Camera/Developing	\$ 11.24
Postage/Copies/Computer	\$ 8.10
ODC Subtotal	<u>\$105.96</u>
Grand Total	<u>\$997.88</u>

Thursday, March 19, 1998 10:12 AM

To: Ed Karkalik

From: Joseph J Gulley

Page: 2 of 4

2(b)
3**Parsons Engineering Science
Memorandum to file****Job No. 731397.03000****Date 3/18/98****Site :**Canton Drop Forge**Subject :**Lagoon #1 Pump Modifications**Project Mgr. :** Ed Karkalik**From :**Joseph J. Gulley**3/18/98**

7:15 am. Meet with Ed Karkalik of Parsons ES, Mr. Keith Housenecht of (CDF) , Mr. Stan Evans of Beaver Excavation, and Mr. Larry Henry of Whistler Plumbing.

Discuss modifications to be made on the Gorman / Rupp pump installed at lagoon #1. The Bypass valve will be rotated 90 degrees to the horizontal position with the valve on the south side of the pump, and the valve handle in the upright position. The isolation valve will be rotated 90 degrees to the upright position. An isolation pancake will be installed between the bypass valve and the tee flange. The horizontal run from the pump face will be shortened to a maximum length of no more than 36". The concentric reducer installed to the pump face will be removed and an eccentric reducer with the flat side up will be installed in it's place. The spool piece between the reducer and the pump flange will be shortened to it's fullest extent. A 90 degree bend with 2.5" screen will be added to the end of the suction line in the lagoon. And a bend will be added behind the bypass valve at the steepest angle allowable to intersect with the riser pipe now extending from the lagoon. All of the above modifications are described in the sketches provided by Ed K. All parties on site have agreed to the above mentioned modifications.

Larry Henry was instructed to contact me as to when work will start. He was given my pager # on site. He said he was not sure if work will begin today because of the weather. I left the site about 8:45am. I Returned to the site aprox. 10:45 am and stayed on site to 11:45 am. No one from Whistler has been seen on site yet today, and I have not received any calls of notification. I can only assume that no work will be done today because of the rain, and because I have not received any calls.

Thursday, March 19, 1998 10:12 AM

To: Ed Karkalik

From: Joseph J. Gulley

Page: 4 of 4

**Parsons Engineering Science
Memorandum to file****Job No. 731397.03000****Date 3/19/98****Site :**Canton Drop Forge**Subject :**Lagoon #1 Pump Modifications**Project Mgr. :** Ed Karkalik**From :**Joseph J. Gulley

3/19/98...Continued

I installed a 1/2" polyethylene line on the bleeder valve for air discharge. Install wire ties to secure the tubing to the pump suction line.

I tested the float assembly for operation and it was not working properly. Trace the wiring in the control panel and check for proper continuity from the float. I was receiving a closed circuit in any position of the float. I checked all of the connections in the float wiring and found a bad connection in the tee body of the conduit. I repaired the connection and the float now works properly.

Keith,
yes. Problem has persisted, even after
1/2" line added. Two possible solutions -
use smaller line (1/4") or put flapper back
in - Joe is investigating and will
figure out right answer.

Jd 3/20/98

Thursday, March 19, 1998 10:12 AM

To: Ed Karkalik

From: Joseph J Gulley

Page: 1 of 4

Name: Joseph J Gulley

Company:

Voice Number: (216)243-0849

Fax Number: 2162430849

360 Chestnut Dr.

Berea, OH 44017

Fax

2(b)
3

Date: Thursday, March 19, 1998

Total Pages: 4

Subject: Canton Drop Forge

Name: Ed Karkalik

Company: Parsons ES

Voice Number:

Fax Number: 486-6119

Note: Ed, Here are my notes to date for CDF. I will provide you with hard copies of the notes next week. I will not be in the office on friday, so if you need to speak with me please page me at 768-2965

Joe Gulley

Post-It Fax Note	7671	Date	3/20	# of pages	4
Karin House Knicker		From	Ed Karkalik		
Co./Dept.		Co.			
Phone #		Phone #			
Fax #		Fax #			

641106

REQUISITION

ESCROW

Date:

10/6/97

Qty.	CDF Part No.	Description	Price
1		GORMAN-RUPP T3A60-B PUMP PACKAGE AS DESCRIBED ON 8/26/97 QUOTE FROM GARY HABERNY	\$4,000
1		MOTOR CONTROL CENTER, FUSED DISCONNECT & POWER SOURCE, AS DESCRIBED ON 9/23/97 QUOTE FROM GARY HABERNY, WITH THE FOLLOWING EXCEPTION TRANSFORMER TO BE 7000 1 KVA NOT .5 KVA PRICE TO BE \$1,440 NOT \$1,220	\$1,440
CONFIRMING W/ GARY HABERNY			

Order No: 99242

Order Placed to:

ARGO INDUSTRIAL

Approved:

Nov 3rd
week of

Argo Industrial

Division of Argo International Corporation

9001 Dutton Drive, P.O. Box 407
Twinsburg, Ohio 44087-0407

TELEPHONE: (216) 425-3121
FAX: (216) 425-4612

TO: K. HOSEKNECHT @ CAF
TO: SAM SAAD, PARSONS ENV. SCIENCE
FROM: G. HABERNY

REF: CANTON DROP FORCE

THE FOLLOWING COMPONENTS WILL PROVIDE A
MOTOR CONTROL CENTER, FUSED DISCONNECT
AND POWER SOURCE FOR THE PUMP PACKAGE
QUOTED. THE FRONT SWITCH WILL BE SHIPPED
LOOSE FOR FINAL WIRING AND INSTALLATION
BY CANTON DROP FORCE.

QTY 1. GE CR341C014B OVERSIZED STARTER
DISCONNECT WITH HAND OFF AUTO
SWITCH, CONTROL TRANSFORMER, PLUS
ADDITIONAL 500 KVA TRANSFORMER TO
CONTROL CASE HEATER. NEMA 3R
ENCLOSURE.

1 KVA

THE ABOVE UNIT WILL BE MOUNTED
ON PUMP BASE, WIRED, AND ASSEMBLED
THE FRONT SWITCH WILL BE SHIPPED
LOOSE AND WILL NEED TO BE TETHERED
TO SUCTION PIPE TO DETERMINE RANGE
OF OPERATION. FINAL WIRING BY CANTON
DROP FORCE.

ADDED NET PRICE: 1220⁰⁰
220

1,440

57,400

4240
Larcen Trans
5160
5820
FREEX
Hose by 00531
216 5374

Gary Haberny
Industrial Sales
Representative

Argo International Corporation
9001 Dutton Drive / P.O. Box 407
Twinsburg, Ohio 44087
Telephone 216 425-3121
Fax 216 425-4612
Pager No. 302-5374

Argo International
Corporation

CDF000715

QUOTATION

Argo International Corporation

9001 Dutton Drive • P.O. Box 407
Twinsburg, Ohio 44087
Telephone: (216) 425-3121
Fax: (216) 425-4612

Date	Salesperson
AUGUST 26, 1997	GARY HABERNY
Inquiry Date	Quote No.
Proposed Shipping Date	F.O.B.
FIVE WEEKS	FACTORY
Ship Via	
BESTWAY	
Terms	
NET THIRTY	

TO
CANTON DROP FORGE
4575 SOUTHWAY, S.W.
CANTON, OHIO 44706

ATTENTION: KEITH HOUSE KNECHT
REFERENCE: LAGOON # 1 TRANSFER PUMP, SECTION, 11211

We are pleased to submit this quotation for your consideration. Our quote is subject to the conditions printed on the reverse side, and is valid for 30 days. Should you place an order, be assured it will receive our prompt attention.

QUANTITY	DESCRIPTION	UNIT PRICE	TOTAL AMOUNT
1	<p>GORMAN-RUPP T3A60-B PUMP PACKAGE COMPLETE WITH A FIVE HP, 1800 RPM TEFC, 460 VOLT THREE PHASE /60/MOTOR.</p> <p>PUMP WILL BE MOUNTED ON A FABRICATED STEEL BASE WITH GUARD, BELTS AND SHEAVES AND STANDARD SHOP PAINT.</p> <p>GORMAN-RUPPS STANDARD 500 WATT IMERSION HEATER WILL BE MOUNTED ON PUMP. THERMOSTATIC CONTROLS HEATER, ON POINT 35°F OFF POINT 40°F. 240 VOLT SINGLE PHASE.</p> <p>NET PRICE.....</p> <p>CC: E. MC CARTNEY, PARSONS ENGINEERING</p> <p><i>MAN FICHA</i> <i>419-529-4110</i></p> <p><i>MOD #</i> <i>TRANS SIZE</i> <i>T'STAT 240V</i> <i>OR 110V</i> <i>CONST 200 ACWAC TYPE 7</i></p>	\$4,000.00	

By Gary Haberny

CDF000716

Date August 26, 1997

REQUISITION

Escrow

Date: 10/6/97

[Handwritten signature]

Argo Industrial

(b)
3
Division of Argo International Corporation

9001 Dutton Drive, P.O. Box 407
Twinsburg, Ohio 44087-0407

TELEPHONE: (216) 425-3121
FAX: (216) 425-4612

July 18, 1997

Parsons Engineering Science
19101 Villaview Road, Suite 301
Cleveland, Ohio 44119

Attention: Elizabeth McCartney

Reference: Canton Drop Forge, Section 11211 Self Priming Pump.
Lagoon Number One Transfer Pump.

Quantity One: Gorman Rupp Model ^{ISO} T3A3B 3" Self-Priming
centrifugal pump to produce 200 GPM @ 33
feet TDH. Pump is fitted with a tungsten
carbide vs. silicon carbide oil lubricated
mechanical seal. Pump will be mounted on
a fabricated steel base with guard, belts and sheaves
and a 5 HP 1800 RPM 230 Volt 1/P electric motor.

NET PRICE.....\$3,798.00

F.O.B.....Mansfield, Ohio

Delivery.....Four Weeks

- Optional Items:
1. Thermostatically controlled casing heater one
point 35°F, off point 40°F. 120 or 240 volt.
 2. Certified Performance Testing.....\$748.00
 3. Hydro test Only.....\$100.00
 4. Certified Pump Prime Test.....\$300.00

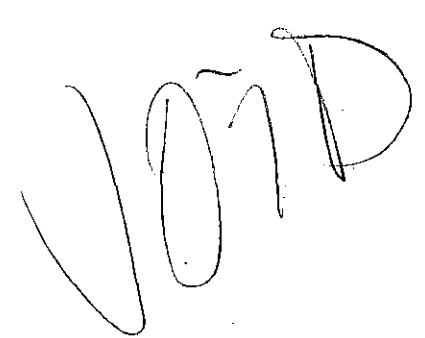
Note: TESTS PERFORMED AT GORMAN RUPP, MANSFIELD FACILITY,
TESTING WILL DELAY DELIVERY.

Sincerely Yours,

ARGO INTERNATIONAL

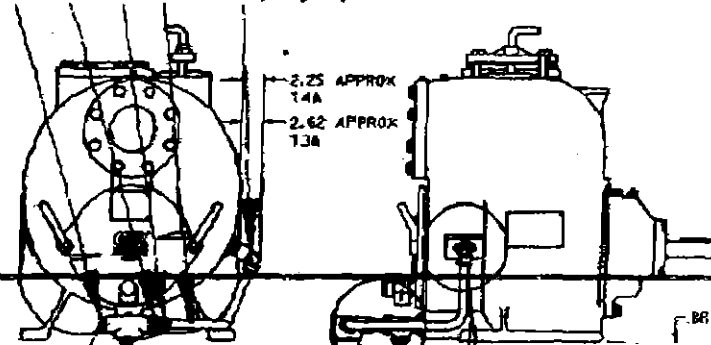

Gary Haberny
Industrial Sales Representative

Enclosure



CDF000718

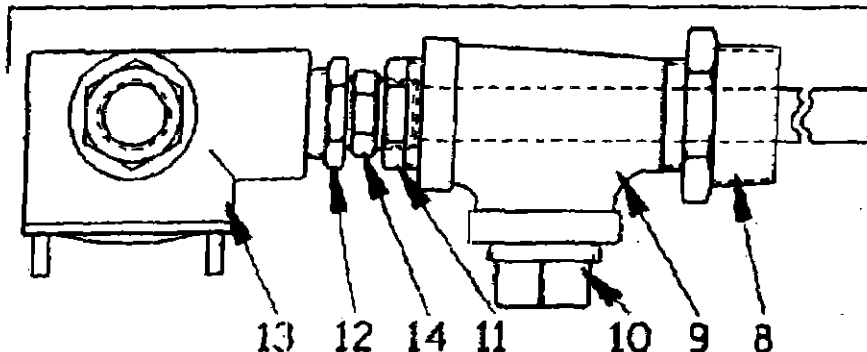
1 2 3 4 5,6,7,15



FOR APPROVAL T&A ONLY

12.50 APPROX 16
11.00 APPROX 13

50-14 STRAIGHT PIPE THREAD OUTLET
FOR CUSTOMERS POWER SOURCE.



ASSEMBLY INSTRUCTIONS

1. REMOVE BACK COVER AND LOO DRAIN PLUG.
2. LOCATE AND DRILL THERMOSTAT MOUNTING HOLES.
3. MOUNT THERMOSTAT P/N 47811-201 IN POSITION WITH MACHINE SCREWS P/N C7048-011 AND LOCK WASHERS P/N J0601. FOR SST VOLUTES, USE 12) 81904-014 JURE SCREWS IN LEU OF MACHINE SCREWS.
4. APPLY LOCTITE PST #567 G-R P/N 14771-042 TO THE THREADS OF PIPE BUSHINGS P/N AP1208 & 27184-502 AND INSTALL IN JUNCTION BOX P/N 27146-011 OUTLETS.
5. INSTALL BUSHING P/N AP1605, HEATER PROBE (REF. NO. 14) AND JUNCTION BOX P/N 27144-019 IN SEQUENCE WITH JUNCTION BOX CAP IN DOWN POSITION. HEATER PROBE LEADS ARE TO BE THREADED INTO JUNCTION BOX.
6. ATTACH LQUATITE CONNECTOR P/N 27151-102 TO LEFT OUTLET OF JUNCTION BOX.
7. THREAD THERMOSTAT LEADS INTO CONDUIT P/N J1412-030 AND SECURE CONDUIT WITH CONNECTORS ON THERMOSTAT AND JUNCTION BOX.
8. ATTACH 1) THERMOSTAT LEAD AND ONE 1) HEATER PROBE LEAD TOGETHER USING SOLDERLESS CONNECTOR P/N 27264-003.

9. INSTALL JUNCTION BOX CAP.
10. INSTALL LOO DRAIN PLUG IN BOTTOM OUTLET (W/ SERVICE FEE)
11. REPLACE BACK COVER.
12. REMAINING JUNCTION BOX OUTLET TO BE USED BY CUSTOMER TO WIRE A APPROPRIATE POWER SOURCE.

NOTES:

1. THE THERMOSTAT MAY BE INSTALLED ON THE OPPOSITE SIDE OF THE CASING BY USING THESE INSTRUCTIONS.
2. CHECK THERMOSTAT WIRING WITH A CONTINUITY LIGHT BEFORE CONNECTING TO HEATER PROBE AT ASSEMBLY. SWITCH SHOULD BE OPEN.
3. KITS TO BE SHIPPED SHOULD BE INSPECTED BY SAME METHOD BEFORE GOING TO CUSTOMER.
4. R/F NO 8 P/N AP2016 TO BE USED ON 19A SERIES ONLY

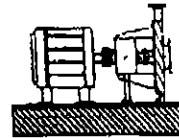
ADVERTISING FORM NO. 1

STEEL:
#29 (1/2" DIA) DRILL X .35 DEEP
TAP #8-32 UNC-2B X .25 DEEP
2 PLACES

SS 1:
73 (099 DIA) DRILL X .30 DEEP
2 HOLES

[illegible]

ARGO INTERNATIONAL

2(b)
3

9001 Dutton Drive Twinsburg, Ohio 44087

Phone: (216) 425-3121

Fax: (216) 425-4612

To: Keith Houseknecht

From: Don Shields

Company: Canton Drop Forge

Date: 9/18/97

Fax: 330-477-2046

Re: GORMAN Rupp

Keith:

At GARY HABERNY'S Request
I AM sending the attached drawing
of the GORMAN Rupp case heater.
IT COMES IN 120 Volt OR 240 Volt ←
AND IS SUITABLE FOR 25, 50 OR 60 HERTZ
FOR the T3 OR T4 it is 500 WATTS
AND COSTS \$295⁰⁰. I don't know if GARY
included it in his quote.
IF you have questions pls Advise.

Thanks

Don

2(b)
3

Parsons Engineering Science

Memorandum to file

JobNo. 731397.03000

Date 3/25/98

Site :Canton Drop Forge

Subject :Lagoon #1 Pump Meeting

Project Mgr. : Ed Karkalik

From :Joseph J. Gulley

Post-it® Fax Note	7671	Date	3/27	# of pages	1
To	Keith Housenecht	From	Ed Karkalik		
Co./Dept.	CDF	Co.			
Phone #		Phone #			
Fax #	330-477-2046	Fax #			

3/25/98

12:30 pm. met with Mr. Keith Housenecht of (CDF) , Mr. Gary Haverny of ARGO Technologies, And Mr. Alvin L. Beer...District Manager of Gorman/Rupp Pump Co.

Discuss work performed on the Gorman / Rupp pump installed at lagoon #1. Explain the pump modifications to Al Beer and Gary Haverny. Explain the results of the test that we ran last week, 3/19/98. Al wanted to know the total length of the suction line. We measured it out, and it is aprox. 50' in length. He also wanted to know the elevation of lift to the pump, I told him the information that I have on a Beaver sketch is 13.12'. Al is going to run some numbers when he gets back to the factory to come up with an accurate priming time based on the information given, the RPM, HP, Pipe Size, And Valves in line.

We checked the pump operation with the gauges that I installed last week. With the suction valve closed the pump would only make about 10" to 12"hg. Al said it should make about 22" to 25" hg. We relocated the Vac. gauge to a different port suggested by Al. When we restarted the pump, it then made 22"hg. We removed the suction inspection port to check the impeller for blockage, we found none. Gary then removed 1 out of 4 impeller clearance shims to get a closer impeller to faceplate clearance. There is know way of knowing clearance there is unless you use Plastigage to measure the clearance. Al said the minimum clearance should be .010"

After the above changes where made, we then primed and tested the pump. It primed in 12 min. 30 sec. We then shut the pump down and then tested it a total of three times. Each time, it primed in just over 12 and a half min.

At this point, all parties appear to be happy with the operation of the pump. Al will run the above mentioned priming numbers and notify Gary Haverny. I told Keith that next time I'm down in Canton, that I will locate the proper size Plastigage and verify the impeller clearance.

a:\clworks\lug2\fieldnts\cdf2

JJGulley3/25/98

CDF000721

2(b)
3**GORMAN-RUPP COMPANY**
FAX TRANSMITTAL SHEET

FROM DAVID MEISTER

G-R FAX # 419-755-1260
PHONE # 419-755-1333

DATE March 27, 1998

TO Parsons Engineering Science
ATT Ed KarkalikFAX 216 486 6119
PAGES 2 INCLUDING COVER

REF Shimming T Series pumps

I mentioned on the phone there is an easy way to shim our T series pump and have a relative good idea what the final clearance is. The attached page is from our operators manual and explains the technique. I should mention that this section is toward the end of a rebuild so there are no belts to pull the rotating assembly to one side. If you use this method on an installed pump the belt tension should be removed before loosening the cap screws and then retightened after the clearance is established and the cap screws are secured.

cc Al Beer

Post-It* Fax Note	7671	Date	3/27	# of pages	2
To	Keith Householder	From	Ed K		
Co./Dept.	CDF	Co.			
Phone #		Phone #			
Fax #	216-477-4571	Fax #			

19.5 MIN. APPROXIMATE PRIME TIME
HAS PRIMER IN 12.5 TO 17 MCL
JOE GULEY WILL CHECK CLEARANCE

T SERIES

OM-01041

Rotating Assembly Installation

(Figure 1)

NOTE

If the pump has been completely disassembled, it is recommended that the suction check valve and back cover assembly be reinstalled at this point. The back cover assembly must be in place to adjust the impeller face clearance.

Install the bearing housing O-ring (8) and lubricate it with light grease. Ease the rotating assembly into the pump casing using the installation tool. Be careful not to damage the O-ring.

Install the four sets of rotating assembly adjusting shims (11) using the same thickness as previously removed. Secure the rotating assembly to the pump casing with the hardware (9 and 10). Do not fully tighten the cap screws until the back cover has been reinstalled and the impeller face clearance has been set.

A clearance of .010 to .020 inch (.25 to .51 mm) between the impeller and the wear plate is also recommended for maximum pump efficiency. This clearance can be obtained by removing an equal amount of shims from each rotating assembly shim set until the impeller scrapes against the wear plate when the shaft is turned. After the impeller scrapes, add approximately .015 inch (.4 mm) of shims to each shim set.

NOTE

An alternate method of adjusting this clearance is to reach through the suction port with a feeler gauge and measure the gap. Add or subtract rotating assembly shims accordingly.

Suction Check Valve Installation

(Figure 1)

Inspect the check valve assembly (30) and replace it if badly worn.

NOTE

The check valve assembly must be replaced as a complete unit. Individual parts are not sold separately.

Reach through the back cover opening with the check valve and position the check valve adaptor in the mounting slot in the suction flange (26). Align the adaptor with the flange hole and secure the assembly with the check valve pin (31).

NOTE

If the suction or discharge flanges were removed, replace the respective gaskets, apply 'Permatex Aviation No. 3 Form-A-Gasket' or equivalent compound to the mating surfaces, and secure them to the pump casing with the attaching hardware.

Back Cover Installation

(Figure 1)

If the wear plate (12) was removed for replacement, carefully center it on the back cover and secure it with the hardware (13 and 14). The wear plate must be concentric to prevent binding when the back cover is installed.

Replace the back cover O-ring (16) and lubricate it with a generous amount of No. 2 grease. Clean any scale or debris from the contacting surfaces in the pump casing that might interfere or prevent a good seal with the back cover. Slide the back cover assembly into the pump casing. Be sure the wear plate does not bind against the impeller.

NOTE

To ease future disassembly, apply a film of grease or 'Never-Seaz' on the back cover shoulder, or any surface which contacts the pump casing. This action will reduce rust and scale build-up.

Secure the back cover assembly by tightening the hand nuts (17) evenly. Do not over-tighten the hand nuts; they should be just tight enough to ensure a good seal at the back cover shoulder. Be sure the wear plate does not bind against the casing.

**PRESSURE RELIEF VALVE
MAINTENANCE**

(Figure 1)

The back cover is equipped with a pressure relief valve (23) to provide additional safety for the pump and operator (refer to Liquid Temperature And Overheating in OPERATION).

2(b)
3**PARSONS ENGINEERING SCIENCE, INC.**

19101 Villaview Road, Suite 100, Cleveland, Ohio 44119 • (216) 486-9005 • Fax: (216) 486-6119

DATE: 2/18/98

TO: Mr. Keith Houseknecht
 LOCATION: Canton Drop Forge, Inc.
 RAPIDFAX NO.: (330) 477-2046
 COPIES TO:

FROM: Ed Karkalik

TOTAL NUMBER OF PAGES 46 (including this cover letter)

IF YOU DO NOT RECEIVE ALL THE PAGES, PLEASE CALL BACK AS SOON AS POSSIBLE.

We are herewith transmitting the following:

DATE	NO.	DESCRIPTION
2/18/98		Scope of Activities - Canton Drop Forge, Inc. (2 pages)
2/18/98		Pump Installation Items - Breakdown by Responsibility (1pg)
2/18/98		Voluntary Action Program (VAP) Initiatives

Keith -

As indicated in our conversation yesterday, at long last here is the information concerning the pump installation aspects (and remaining items) for the Lagoon #1 project.

Please note that I have separated the items into three categories, as indicated in the attachments. The first group relates to those items which need to be addressed to complete the scope of work already approved and under contract by CDF; the second are items requested since your 8/22/97 contract execution with Beaver, but not yet placed under contract via change order (one of these is already done - 14); and the third are items requested by or proposed to CDF but not yet implemented, contracted, etc.

Also attached is the letter confirming your and Alan Resnick's discussions concerning VAP initiatives and potential applicability + eligibility considerations.

Please call to confirm and discuss these issues when you have the chance.

JOB NO. 731397.03000

Ed

**SCOPE OF ACTIVITIES
CANTON DROP FORGE, INC.
LAGOON NO. 1 RECONSTRUCTION PROJECT
PUMP INSTALLATION ITEMS**

Following is a listing of items identified as remaining to complete the pump installation for the Lagoon No. 1 reconstruction project at Canton Drop Forge, Inc. These items are divided into categories, depending on the contractual obligations at the time of pump system start-up.

<u>Item/Description</u>	<u>Action Required</u>	<u>Cost Estimate</u>
A. <u>Under contract, but not completed</u>		
1. Replace concentric with eccentric reducer on pump suction	Remove off-spec reducer and replace with proper piece	\$81
2. Realign bypass valve on suction line	Unbolt, re-position valve	\$322
3. Realign horizontal suction line section	Cut pipe and pipe support, weld in new section at slope, as indicated	\$644*
4. Install 1/2" discharge bleed line	Run line along suction line to a point about 10 ft down; tie into area drain	\$100
5. Complete engineering for existing scope items	As required	N/C
6. Replace/repair broken thermostat housing on motor	As required	N/C
7. Paint exposed sections of piping	As required, per spec	N/C
B. <u>Approved by CDF, but not priced or included in contract</u>		
8. Install float switch	Drive angle iron into pond near end of suction line and attach float switch	\$0
9. Install suction nozzle and screen	Install 90° bend at end of suction with by 2-1/2" screen attached	\$108
10. Re-install heat trace on valve bodies	After checking on revised operation, heat trace not required	\$0
11. Install insulation on valve bodies	Insulation not required	\$0
12. Complete construction observation on existing scope items	As required; scope of services and budget had expired	\$1,419
13. Install blind flange in suction bypass valve line	When repositioning valve, install blind flange/pancake in line to prevent leaks	\$27
14. Install bypass valves	Completed; see item #2 above	\$1,008

Proposed to/by CDF, but not approved or under contract

15. Remove flapper valve from pump	Procedure to be obtained from G/R	\$0
16. Upgrade motor from 5 to 7.5 HP	Replace motor, gearing pulley and belts	\$773**
17. Complete engineering for new items	As required	\$443
18. Complete construction observation for new items	As required	\$374

N/C = no change in scope or no cost increase for the change.

C/O = change order from original scope, issued and approved 8/22/97.

* = costs for this item split 50/50 by Beaver and Parsons ES.

** = includes costs of \$542 from Argo for replacement of motor, etc. and \$231 from Beaver for installation; does not include credit for returned equipment (i.e., motor).

PUMP INSTALLATION ITEMS

Breakdown by Responsibility (Proposed)

<u>Item/Description</u>	<u>Action By:</u>	<u>Cost Paid By:</u>	<u>Cost Est.:</u>
-------------------------	-------------------	----------------------	-------------------

A. Under contract, but not completed

1. Eccentric reducer on pump suction	Beaver	Beaver	\$81
2. Bypass valve on suction line	Beaver	Parsons	\$322
3. Horizontal suction line	Beaver	Beaver/Parsons	\$644*
4. Discharge bleed line	Parsons	Parsons	\$100
5. Engineering for existing scope items	Parsons	Parsons	N/C
6. Thermostat housing	Beaver	Beaver	N/C
7. Painting	Beaver	Beaver	N/C

B. Approved by CDF, but not priced or included in contract

ARGO - 8. Float switch	Beaver	CDF (C/O)	\$0
ARGO - 9. Suction nozzle/screen	Beaver	CDF (C/O)	\$108
- 10. Heat trace	Deleted	Deleted	\$0
- 11. Insulation	Deleted	Deleted	\$0
CHANGE - 12. Construction observation/existing scope	Parsons	CDF (C/O)	\$1,419 - 0
OK - 13. Blind flange in suction bypass	Beaver	CDF (C/O)	\$27 - OK
OK - 14. Pump bypass valves (completed)	Beaver	CDF (C/O)	\$1,008 - OK

Proposed to/by CDF, but not approved or under contract

ARGO - 15. Flapper valve removal	Beaver	CDF (C/O)	\$0 - OK
OFF - 16. Upgrade motor	Beaver	CDF (C/O)	\$773** - No
17. Engineering for new items	Parsons	CDF (C/O)	\$443 - No
18. Construction observation/new items	Parsons	CDF (C/O)	\$374 - No

N/C = no change in scope or no cost increase for the change.

C/O = change order from original scope, issued and approved 8/22/97.

* = costs for this item split 50/50 by Beaver and Parsons ES.

** = includes costs of \$542 from Argo for replacement of motor, etc. and \$231 from Beaver for installation; does not include credit for returned equipment (i.e., motor).

From Parsons
204 3024

Bid Item	Description	Unit	Updated Engineer's Estimate			Beaver Bid			Beaver Bid Adjusted		
			Quantity	Unit Price	Total Price	Quantity	Unit Price	Total Price	Quantity	Unit Price	Total Price
1	Insurance, Fees, and Permits				\$0			\$0			\$0
2	Performance Bond				\$2,000			\$2,600			\$2,200
3	Mobilization / Demobilization				\$14,000			\$19,361			\$18,635
4	Demolition and Site Preparation				\$5,000			\$5,715			\$5,715
5	Excavation / Backfill of Trenches/ Foundations				\$500			\$1,082			\$1,082
6	Sewer Line Installation										
	8" Gravity Sewer				\$0			\$16,182			
	4" Pressure Sewer				\$26,000			\$23,615			\$24,528
	Modify Pipes in Lagoon				\$1,600			\$4,862			\$2,294.80
7	Paving Replacement				\$3,000			\$2,739			\$2,739
8	Concrete Foundations				\$1,000			\$2,714			\$2,714
9	Oil-Impacted Soil Removal, Stabilization, Re-Grading, Placement and Compacting in Lagoon No. 1					933	\$53.94	\$50,322			\$38,925.40
	Dewater Lagoon				\$1,000						
	Regrade Lagoon				\$4,000						
	Soil Stabilization	CY	600	\$43	\$25,800						
10	Oil -Impacted Soil Shredding, Screening, and Stabilization	CY	3000	\$11	\$33,000	3000	\$13.54	\$40,620			\$32,060
11	Lower / Upper Clay Layer Placement and Compacting	CY	1100	\$40	\$44,000	1088	\$42.25	\$45,968			\$45,968
12	Stabilized Soil Placement and Compacting	CY	3000	\$12.00	\$36,000	3000	\$11.72	\$35,160			\$35,160
13	Owner - Furnished Equipment Installation				\$1,000			\$946			\$946
14	Finish Grading, Walkways, Seeding				\$0			\$4,235			\$0
15	Electrical				\$3,000			\$7,573			\$5,873
16	Facility Commissioning / Start-up				\$1,000			\$770			\$770
TOTAL					\$201,900			\$264,464			\$219,610.20

CDF000728

R. JAMES HAMMONTREE, P.E., P.S.
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THOMAS J. KING, P.S.
PAUL K. MILLER, P.S.

October 4, 1994

RECEIVED

OCT 5 1994

CANTON DROP FORGE

Canton Drop Forge
4575 Southway Street
P.O. Box 6902
Canton, Ohio 44706-0902

Attention: **Mr. Houseknecht**

Dear Mr. Houseknecht:

This letter represents Hammontree & Associates response to your request for a revised proposal concerning the sampling of sludges from the basin of lagoon #1 at your Southway Street Facility.

The following proposal is based on our understanding that you plan to dredge the lagoon and use it as a stormwater and treated process water retention pond.

If you have any questions or comments that may alter the sampling or testing, please call so we can develop a plan that suits your needs.

Respectfully,

HAMMONTREE & ASSOCIATES, LIMITED



Gene G. Hill, E.I.T., M.S.

Prior to excavation and disposal of materials lining lagoon #1, it is necessary to determine whether these materials are considered hazardous (as defined in CFR 40, part 261).

If the materials tested are determined to be non-hazardous they may be disposed of in a local non-hazardous licensed landfill. If the materials tested are found to be hazardous other options of treatment/disposal must be investigated. The characteristics of a waste that determine whether a hazardous classification is warranted are toxicity, corrosivity, ignitability and reactivity.

To perform the sampling and testing required to classify the sludge from lagoon #1, Hammontree & Associates will follow procedures outlined in "Test Methods for Evaluating Solid Waste" (SW 846) distributed by the Federal Environmental Protection Agency.

Hammontree & Associates will retrieve four to six sludge/sediment samples and have the following analysis performed:

1. Full Toxicity Leaching Characteristic Procedure (TCLP) (excluding herbicides & pesticides) **This will cover metals and organics for toxicity**
2. Reactive Cyanide - **reactivity**
3. Reactive Sulfur - **reactivity**
4. Flash Point - **ignitability**
5. pH - **corrosivity**
6. Paint Filter Liquids Test - **landfills require solid wastes**
7. PCB's - **due to past detection** (Governed under Toxic Substance Control Act) (TSCA)
8. Total Petroleum Hydrocarbons (TPH) - **due to oil and grease contamination**

These tests are required by landfills prior to accepting industrial/oil contaminated sludge.

We feel that determining the hazardous/non-hazardous status of the material should be completed prior to any further studies or investigations.

We expect laboratory analysis of each sample to cost \$1,250.00. Our services will include developing a sampling plan, retrieving samples, laboratory analysis, and a report discussing the results of the analysis and options available.

The estimated cost of the outlined work is as follows:

Prepare sampling plan according to SW846	800.00
Retrieve samples (2 man crew)	2,280.00
Miscellaneous disposable supplies	200.00
Lab analysis (6 samples)	7,500.00
Analysis/Options Report	2,200.00
Estimated Cost	\$12,980.00

In reviewing this proposal for professional services, it should be understood that the above proposal items and their corresponding fees do not necessarily represent the full scope of services required for the project. Rather, it represents our best effort to set forth those services which we believe to be those requested by you, the client, and/or those we can determine to be needed to accomplish a particular objective. However, we recognize, and we ask that the client recognize, that as the project progresses, the scope of services as originally defined may change in content to include work not initially identified. Several factors will cause this to happen:

Better understanding of the project, the site, and the client's goals as progress on the project is made.

1. Additional requirements identified by the client.
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3. As these influences occur and are identified, we will advise you of same and seek the direction to proceed.

Work required as a result of the above will be "extra work" outside of the original scope of services. Upon your direction, we will perform the work under the "Work Not Specified" section of this proposal or we can provide you with a separate proposal should the scope so indicate.

WORK NOT SPECIFIED

Work not specified in the above proposal items will not be performed without your prior knowledge and approval. When merited, we will provide you with a lump sum fee for additional services. Otherwise, additional services will be performed on an hourly basis, at the following rates: \$92.00 per hour for field crews; \$57.00 per hour for computing, calculations, legal descriptions, engineering, planning and associated coordination activities; \$82.00 per hour for services by a Registered Engineer for representation before public bodies including meetings, and processing of plans, permits, etc. through those agencies.

HOURLY CHARGES

Hourly work will be billed at our current prevailing rates.

w:southway

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PAUL K. MILLER, P.S.

October 4, 1994

Canton Drop Forge
4575 Southway Street
P.O. Box 6902
Canton, Ohio 44706-0902

Attention: **Mr. Houseknecht**

Dear Mr. Houseknecht:

This letter represents Hammontree & Associates response to your request for proposal concerning the sampling of sludges from the basin of **lagoon #2** at your Southway Street Facility.

The following proposal is based on our understanding that you plan to dredge the lagoon and use it as a stormwater and treated process water retention pond.

If you have any questions or comments that may alter the sampling or testing or the scope of work required for **lagoon #2**, please call so we can develop a plan that suits your needs.

Respectfully,

HAMMONTREE & ASSOCIATES, LIMITED



Gene G. Hill, E.I.T., M.S.

RECEIVED
OCT 5 1994
CANTON DROP FORGE

Prior to excavation and disposal of materials lining **lagoon #2**, it is necessary to determine whether these materials are considered hazardous (as defined in CFR 40, part 261).

If the materials tested are determined to be non-hazardous they may be disposed of in a local non-hazardous licensed landfill. If the materials tested are found to be hazardous other options of treatment/disposal must be investigated. The characteristics of a waste that determine whether a hazardous classification is warranted are toxicity, corrosivity, ignitability and reactivity.

To perform the sampling and testing required to classify the sludge from **lagoon #2**, Hammontree & Associates will follow procedures outlined in "Test Methods for Evaluating Solid Waste" (SW 846) distributed by the Federal Environmental Protection Agency.

Hammontree & Associates will retrieve four to six sludge/sediment samples and have the following analysis performed:

1. Full Toxicity Leaching Characteristic Procedure (TCLP) (excluding herbicides & pesticides) **This will cover metals and organics for toxicity**
2. Reactive Cyanide - **reactivity**
3. Reactive Sulfur - **reactivity**
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8. Total Petroleum Hydrocarbons (TPH) - **due to oil and grease contamination**

These tests are required by landfills prior to accepting industrial/oil contaminated sludge.

We feel that determining the hazardous/non-hazardous status of the material should be completed prior to any further studies or investigations.

We expect laboratory analysis of each sample to cost \$1,250.00. Our services will include developing a sampling plan, retrieving samples, laboratory analysis, and a report discussing the results of the analysis and options available.

The estimated cost of the outlined work is as follows:

Prepare sampling plan according to SW846	912.00
Retrieve samples (2 man crew)	2,736.00
Miscellaneous disposable supplies	200.00
Lab analysis (8 samples)	10,000.00
Analysis/Options Report	2,000.00
Estimated Cost	\$15,848.00

In reviewing this proposal for professional services, it should be understood that the above proposal items and their corresponding fees do not necessarily represent the full scope of services required for the project. Rather, it represents our best effort to set forth those services which we believe to be those requested by you, the client, and/or those we can determine to be needed to accomplish a particular objective. However, we recognize, and we ask that the client recognize, that as the project progresses, the scope of services as originally defined may change in content to include work not initially identified. Several factors will cause this to happen:

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HOURLY CHARGES

Hourly work will be billed at our current prevailing rates.

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10/04/94

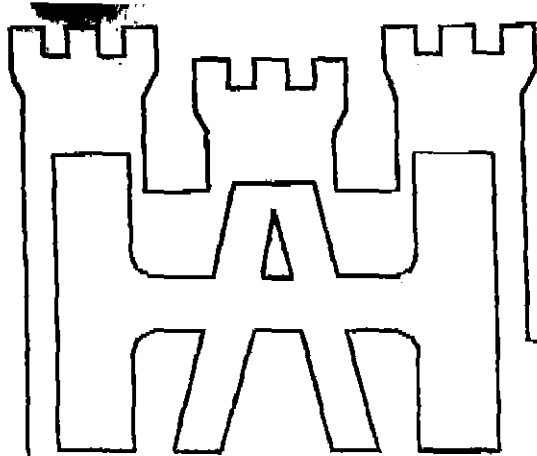
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216 499 0149

FROM HAMMONTREE & ASSOC.

10. 4.1994 14:34

P. 1



FACSIMILE TRANSMITTAL

2(b)
3DATE: 10/4/94 TIME: 4:00 () A. M. (X) P. M.TO: NAME: KEITH HOUSEKNECHT
BUSINESS NAME: CDF 477-4511 - Jersey
FACSIMILE NUMBER: (216) 477-2046FROM: HAMMONTREE AND ASSOCIATES, LIMITED
5233 STONEHAM ROAD
NORTH CANTON, OHIO 44720TELEPHONE NUMBERS: (216) 499-8817 CANTON OFFICE
(216) 633-7274 AKRON OFFICE
(216) 499-0149 FACSIMILESENDER'S NAME: GENE
PROJECT: _____
NUMBER OF PAGES (INCLUDING THIS PAGE): _____
BRIEF DESCRIPTION (OPTIONAL): _____

ADDITIONAL INSTRUCTIONS OR MESSAGES TO RECIPIENT:

KEITH,HERE IS MATERIAL YOU REQUIRE.CHECK SCOPE FOR LAGOON #2 TO SEEIF IT IS WHAT YOU WANTGENE

Prior to excavation and disposal of materials lining lagoon #2, it is necessary to determine whether these materials are considered hazardous (as defined in CFR 40, part 261).

If the materials tested are determined to be non-hazardous they may be disposed of in a local non-hazardous licensed landfill. If the materials tested are found to be hazardous other options of treatment/disposal must be investigated. The characteristics of a waste that determine whether a hazardous classification is warranted are toxicity, corrosivity, ignitability and reactivity.

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HOURLY CHARGES

Hourly work will be billed at our current prevailing rates.

w:\rene\south1.doc

2(b)
3

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HAMMONTREE & ASSOCIATES, LIMITED

Consulting Engineers - Planners - Surveyors

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PAUL K. MILLER, P.S.

October 4, 1994

Canton Drop Forge
4575 Southway Street
P.O. Box 6902
Canton, Ohio 44706-0902

Attention: **Mr. Houseknecht**

Dear Mr. Houseknecht:

This letter represents Hammontree & Associates response to your request for proposal concerning the sampling of sludges from the basin of lagoon #2 at your Southway Street Facility.

The following proposal is based on our understanding that you plan to dredge the lagoon and use it as a stormwater and treated process water retention pond.

If you have any questions or comments that may alter the sampling or testing or the scope of work required for lagoon #2, please call so we can develop a plan that suits your needs.

Respectfully,

HAMMONTREE & ASSOCIATES, LIMITED

Gene G. Hill

Gene G. Hill, E.I.T., M.S.

Samples Total 20 min
± Sample From Basin 6 min
6 of 20
Time Limit on Samples
Storage & Location
0 Hammontree
Test 6 of 20 min

*Per Gene
1 week (1st Round Results)
2 week save samples*

*(616) 723-6291
ANZY*

Woodbury River - C

OF SAMPLES

DISPOSAL OF SAMPLES

LOCATION OF DECON. AREA

PERSONAL PROTECTION (CON or HEALTH & SAFETY PLAN)

DEPTH & VOLUME ESTIMATE

CHARACTERISTICS

TPH, PCB, VOC'S, METALS, TCLP, FLASH

FROM WATER SURFACE

34 - SAMPLES

REPORT - BURNE NOV 23

60-65 / cu yd (2 ton) 50 TON 2nd WASTE NOTED
150-200 - HAZARDOUS

R. JAMES HAMMONTREE, P.E., P.S.
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PAUL K. MILLER, P.S.

September 7, 1994

RECEIVED

SEP 8 1994

CANTON DROP FORGE

Canton Drop Forge
4575 Southway Street
P.O. Box 6902
Canton, Ohio 44706-0902

Attention: **Mr. Houseknecht**

Dear Mr. Houseknecht:

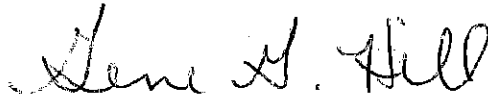
This letter represents Hammontree & Associates response to your request for proposal concerning the sampling of sludges from the basin of lagoon #1 at your Southway Street Facility.

The following proposal is based on our understanding that you plan to dredge the lagoon and use it as a stormwater and treated process water retention pond.

If you have any questions or comments that may alter the sampling or testing, please call so we can develop a plan that suits your needs.

Respectfully,

HAMMONTREE & ASSOCIATES, LIMITED



Gene G. Hill, E.I.T., M.S.

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The estimated cost of the outlined work is as follows:

Prepare sampling plan according to SW846	680.00
Retrieve samples (2 man crew)	1,200.00
Lab analysis (6 samples)	7,500.00
Analysis/Options Report	2,200.00
Estimated Cost	\$11,580.00

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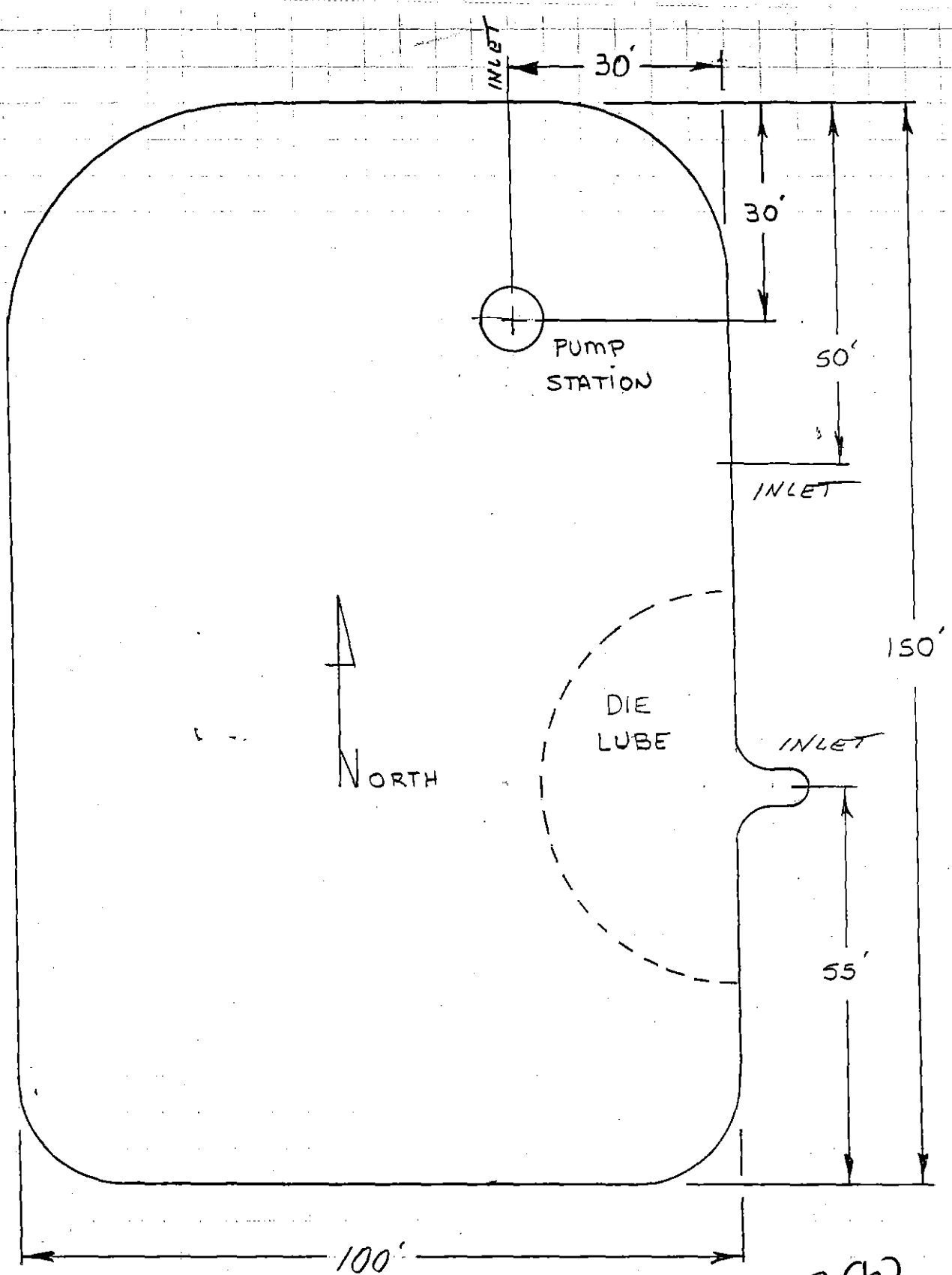
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HOURLY CHARGES

Hourly work will be billed at our current prevailing rates.

w:southway



2(b)
3

LAGOON #1
ALL DIMENSIONS APPROX.
KEITH
8/29/94



6834 Loop Road, Centerville, Ohio 45459, (513) 434-1334
FAX 513-434-3807

2 (b)
3

RECEIVED

SEP 6 1994

CANTON DROP FORGE

September 2, 1994

Mr. Keith Houseknecht
Canton Drop Forge
4575 Southway St. S.W.
Canton, Ohio 44706

RE: Profiling of Pond Sludges

Dear Mr. Houseknecht:

Thank you for the opportunity to provide you and Canton Drop Forge with our proposal for job tasks associated with the profiling of pond sludges that remain following evacuation of a majority of the emulsified oil in the settling pond at the southwest corner of your Southway Street facility.

Per our telephone conversation yesterday, I have discussed this issue with both our Environmental Division Manager and our Landfill Division Manager, both of whom agree to perform the following services at no charge to Canton Drop Forge:

- Establish a grid system to be used as a point of reference for data acquisition and future site work.
- Provide personnel and equipment required to effectively transverse the pond.
- Utilize a pontoon specifically designed for acquiring liquid, sludge and solid phase sample material.
- Utilize a manually-operated calibrator in an attempt to determine the location consistency and volumes of sludges that exist in individual grids within the pond.
- Obtain a maximum of 40 sludge samples from the pond, assuming grids approximating 500 sq. ft. in size.
- Provide Canton Drop Forge with pond mapping indicating the approximate mass contours and estimated depths of sludges.

CDF000744

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SEP 6 1994

CANTON DROP FORGE

Mr. Houseknecht
September 1, 1994
Page 2

- At the direction of Canton Drop Forge, assist in compositing sample materials and properly identify same.
- Provide Canton Drop Forge a written summary of all personnel, equipment, and supplies utilized during on-site activities.

We would ask Canton Drop Forge to assist with this project in the following manner:

- Provide Kelchner any current information with respect to the pond prior to our initiating site work.
- Assure Kelchner Environmental an opportunity to submit a proposal for any and all future work associated with the pond and an assurance that our proposal will be given fair consideration.
- Allow Kelchner personnel access to restroom facilities and portable water during our time on site.
- Provide a Canton Drop Forge Site Manager, who can oversee the site work and make decisions relative to the compositing of samples and identification of sludge matrices.
- Provide Kelchner with a report of the data and analytical results acquired as a result of this project.

As we discussed via telephone, you will receive no billing for these services. Rather, when our proposal for additional pond abatement work is submitted, there will appear a separate line item reflecting the cost of these services as a part of our competitive bid. Please note that our proposal does not include the job tasks or costs associated with the selection of an analytical laboratory, sampling supply's, transportation of samples to the selected laboratory, or the analysis performed on the sampled material.

CDF000745

RECEIVED

SEP 6 1994

CANTON DROP FRIDGE

Mr. Houseknecht
September 1, 1994
Page 3

We trust that this proposal is received in the same spirit of mutual cooperation in which it is issued.

Respectfully,

KELCHNER ENVIRONMENTAL, INC.

A handwritten signature in cursive script that reads "Randy Farneth" followed by a date "1/28/94".

Randy Farneth
Corporate Accounts Manager

RF/dko

CDF000746

2(b)
3



**FLOYD
BROWNE
ASSOCIATES,
INC.**

181 S. MAIN ST., P.O. BOX 587, MARION, OHIO 43301-0587
(614) 383-2187 FAX (614) 382-1420

GEO 194-94
Canton Drop Forge

August 10, 1994

Mr. Keith Houseknecht
Canton Drop Forge
4575 Southway Street S.W., P.O. Box 6902
Canton, Ohio 44706

Dear Mr. Houseknecht:

Subject: Lagoon #1 Sampling and Characterization

Per our site meeting on July 20, 1994, FBA Environmental Inc. is pleased to provide Canton Drop Forge with a proposal to complete the sampling and to determine the physical characteristics of Lagoon #1.

PROPOSED SCOPE

The services to be proposed are based on assumptions concerning the site characteristics and working conditions at the Canton Drop Forge facility. In the likelihood that uncontrollable situations arise, i.e. poor weather conditions, restricted mobilization within the Canton Drop Forge facility, difficult accessibility surrounding the Lagoon #1 or any other potentially hazardous conditions while performing this type of specialized service, FBA Environmental will promptly notify Canton Drop Forge of these occurrences and their effect on the proposed scope of work and cost estimate.

Task 1-Equipment Mobilization

To successfully complete the characterization of Lagoon #1, FBA Environmental will mobilize a pontoon boat, 24 sections of 3-inch aluminum pipe (30 foot lengths), a vibracoring device and all other necessary support equipment to the Canton Drop Forge facility. To prevent damage to our equipment and or alteration of the Lagoon, a truck mounted crane will be mobilized to the site to initially position the pontoon boat in the Lagoon. At the completion of all field activities, a truck mounted crane will remove the pontoon boat from the lagoon. FBA Environmental anticipates the need for a four (4) man field crew. The field crew will consist of experienced personnel who have performed this type of service at other facilities around the country. Each crew member has been certified to work in potentially hazardous conditions and

CDF000747

Mr. Keith Houseknecht
Canton Drop Forge
August 11, 1994
Page 2

are properly trained with their 40-hour OSHA certification. FBA Environmental anticipates the following people will be dedicated to this project throughout the duration:

Mr. Gregory McComas--Project Hydrogeologist
Mr. Mike Burge--Senior GeoTechnician
Mr. Gerald Nauer--GeoTechnician
Mr. Matt Kaluza--GeoTechnician

Task 2-Site Preparation

Upon arrival at the Canton Drop Forge facility, FBA Environmental will need a "clean area" to serve as a decontamination pad. The decontamination pad will be used for cleaning road grime and or machine oils from the aluminum vibracoring pipe. Each section of aluminum pipe will be steam cleaned with a portable steam cleaning unit. In addition, a sample retrieval and extraction area will be established near the lagoon which will also be utilized as a storage area for ancillary supplies and equipment.

Prior to sediment sample collection, a site meeting between Canton Drop Forge and FBA Environmental will take place in order to coordinate the logistics and method for maintaining accurate grid transects while performing vibracore sampling. Upon mutual consent on the grid spacing and number of sample cores, FBA Environmental will establish a transect to be followed during sample progression across Lagoon #1. For the purposes of this proposal, a 4 x 6 transect with 25 foot spacings has been chosen for the Lagoon. This arrangement yields approximately 24 sediment cores. If Canton Drop Forge prefers a 3 x 6 grid with 30 foot spacings, 18 sediment cores would be collected. Sampling and laboratory costs are directionally proportional to the number of sediment cores collected. At each sampling point, a horizontal and vertical datum will be established to assist in the bottom profile of the lagoon.

Due to the nature of this type of field work, solid waste materials will be generated, i.e. excess sediment, waste plastic, personal protective gear, spent/cut aluminum tubes and decontamination water. To date, it is assumed that this waste material will be managed by Canton Drop Forge for proper disposal based on hazardous characterization tests to determine the nature of the sediment material.

Task 3-Sediment Sample Acquisition

After all quality control measures and health and safety provisions have been prepared, field crew members will initiate sampling and physical description of the sediments recovered from each sampling tube. Methods employed during sample collection will adhere to the protocols outlined in the attached Sampling Plan (*Attachment A*). Sediment samples will be sent to Zande Environmental Service, Inc. in Columbus, Ohio for chemical analysis. The attached Table No.

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Mr. Keith Houseknecht
Canton Drop Forge
August 11, 1994
Page 3

2 outlines the chemical constituents and frequency of sediment samples to be collected for laboratory analysis. FBA Environmental suggests that material safety data sheets (MSDS) or other historical information concerning the oils in question be provided at our logistics meeting prior to starting field work activities. With this information, FBA Environmental should be able to reduce the chemical constituents to a more reasonable list, thus saving Canton Drop Forge the added expense of unnecessary sampling and analysis.

Because the materials from this lagoon are of an unknown origin, FBA Environmental will perform this work in a modified Level C personal protection. Because of the type of work involved and potential risks, field personnel will comply with FBA Environmental's Health and Safety Plan (HASP). An example HASP is provided in *Attachment B* as a means of illustrating the basic outline and subjects discussed. When awarded this project, FBA Environmental will finalize the HASP and submit a copy to Canton Drop Forge for their review.

Task 4-Lagoon #1 Characterization Report

Upon completion of vibracoring sample collection, FBA Environmental will compile cross sections, stratigraphic descriptions of sediment encountered, subsurface topographic maps will be generated and volumetric capacities of sediment within the Lagoon #1 will be estimated. Upon receipt of the analytical data, FBA Environmental will correlate stratigraphy and chemical concentration values within an aerial extent. In addition, isopleth maps will be generated from analytical data points to determine chemical constituent distributions both horizontally and vertically within the sediment. All information will be compiled and bound in a report format for internal use by Canton Drop Forge. A preliminary draft report can be submitted to you prior to final report completion if you so choose.

PROJECT QUOTATION

FBA Environmental's fee for the services described above will be invoiced on a time-and-expense basis with personnel assigned to the project billed at our current hourly rates, plus expenses including vehicle travel and standard reimbursable rates. The costs to perform this work are outlined in the attached Table No. 1 for your review. FBA Environmental estimates the cost to be Forty Two Thousand Fifty Six Dollars (\$42,056.00). This offer remains valid for 30 days; acceptance thereafter is subject to our approval.

INVOICING PROCEDURES

Invoices will be submitted monthly based on the amount of work actually performed. If the CLIENT fails to make any payment due FBA Environmental within thirty (30) days after receipt of FBA Environmental's invoice, the amounts due FBA Environmental may include a charge at the rate of 1-1/2% per month from said thirtieth day. In addition, FBA Environmental may

CDF000749

Mr. Keith Houseknecht
Canton Drop Forge
August 10, 1994
Page 4

suspend services under this Agreement until all outstanding invoices have been paid in full plus accrued interest.

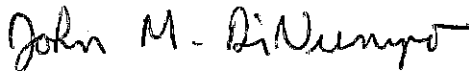
PROJECT INITIATION PROCEDURES

If this proposal is satisfactory, you may authorize FBA Environmental to proceed at once by signing three copies of this letter and returning two copies to FBA Environmental. If there is a need for clarification or if changes in contractual arrangements are desired, please contact John DiNunzio or Greg McComas.

FBA Environmental looks forward to working with you and providing professional services to Canton Drop Forge. If any of FBA Environmental's costs do not adequately encompass the scope of this project or seem improper, please call so we can discuss the anticipated work and cost of services proposed.

Sincerely,

FBA Environmental, Inc.



John M. DiNunzio, CPG
Vice President

*attachments: Attachment A, Sampling Plan
Attachment B, Health and Safety Plan*

ACCEPTED: Canton Drop Forge

By: _____

Title: _____

Date: _____

CDF000750

TABLE NO.1

Task 1-Equipment Mobilization

a) Pontoon boat, equipment and crew	\$1,000.00
b) Truck mounted crane (placement and removal)	\$1,000.00

Task 2-Site Preparation, Decontamination and Cleanup

Construct decontamination pad and sample retrievable tables, load equipment, prepare pontoon boat and vibracoring system, decon-equipment at the end of the job.
\$4,750.00

Task 3-Sediment Sample Acquisition

a) On-site sampling - assumes 5 field days with 4 man crew	\$11,880.00
b) Per diem/expenses - assumes 7 days, 6 nights with 4 man crew	\$1,700.00

Task 4-Lagoon #1 Characterization Report

Project management, data compilation, interpretation and report preparation
\$7,110.00

Laboratory Costs

Assumes one sample per sediment core and no PCB confirmation samples
\$8,407.00

Additional Costs

Equipment rental (pontoon boat, jon boat, OVA, steam cleaner, generator, decon equipment, vibracore) \$672/day Assume 5 days of rental
\$3,460.00

Expendables
\$2,749.00

TOTAL PROJECT COST	\$42,056.00
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Note:

Costs for surveying are assumed to be contracted directly through Canton Drop Forge. Surveying costs are not included in this estimate.

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Table No. 2
Canton Drop Forge (Lagoon Characterization)
Analytical Sampling Program
(Assumes 24 sediment cores)

<u>CHEMICAL CONSTITUENT</u>	<u>FREQUENCY OF SAMPLES</u>
TPH (Method 8015)	minimum of 24
PCB (field screening kits)	minimum of 24
PCB (Method 8080)	only positive detections with field kits
VOCs (Method 8240)	24 (from highest OVA reading in field)
SVOCs (Method 8270)	20% of total samples collected (min. 5)
Metals*	20% of total samples collected (min. 5)
TCLP**	one
Flash point	minimum of 2 on selected samples

Notes:

** Metals include arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver.*

***TCLP includes metals and volatile organics.*

CDF000752

ATTACHMENT A

FIELD SAMPLING PLAN

1.0 Introduction

The following plan describes the objectives and methods used to sample the sediment within Lagoon #1 at the Canton Drop Forge facility in Canton, Ohio, as illustrated in Plate No. 1

1.1 Sampling Objective

The objective of the sampling program is to provide physical measurements and descriptions of sediment at the bottom of the lagoon. If stratification exists, an attempt will be made to map the top of each sediment type, to determine the volume of each sediment type, and analyze the chemical nature of each stratigraphic zone through laboratory procedures.

1.2 Core Sample Location

One sediment core will be collected at the grid intersect as illustrated on the Canton Drop Forge Plate No. 2. Sediment core locations may be altered to fully delineate the areas immediately adjacent to the lagoon inlet locations. To adequately locate each sample core collected, FBA Environmental proposes to survey each sample location in order to maintain datum control. If Canton Drop Forge prefers to use a local surveyor, FBA Environmental will coordinate with that individual the grid setup and scope of the vibracoring project.

1.3 Core Sample Frequency

One sediment core will be collected at each grid intersect as illustrated on Plate No. 2. Based on the proposed grid pattern as defined by FBA Environmental, 24 sediment cores will be collected from Lagoon #1. The grid is based on a 4 x 6 transect with cores collected every 25 feet along the transects. Each core location (24) should adequately define the characteristics of the lagoon.

All sediment cores collected will be described by the project geologist. To maintain consistent descriptions and nomenclature, the same project geologist will log each core collected from the grid. To characterize the chemical composition of sediment within Lagoon #1, a minimum of one sample for laboratory analysis will be collected from each sediment core. The number of samples per sediment core or per sediment horizon has not been defined at this time by either Canton Drop Forge or FBA Environmental. As a general rule, an analytical sample should be collected from at least every 5 feet of sediment recovery. However, based on our first transect run and after general sampling conditions have been evaluated, a group decision will be made as to what criteria defines a stratigraphic zone within the sediment, and at what locations do we focus our sampling effort, i.e. inlet locations.

1.4 Sample Matrices

Samples of the Lagoon #1 sediment will be collected from each grid location. The vibracore will be advanced to refusal or natural sediment at each sampling point. If natural materials are encountered and are able to be penetrated with the vibracore, FBA Environmental proposes to collect selected natural sediments in order to delineate the transition zone between the lagoon bottom and "non-impacted" natural materials.

CDF000753

Sample matrices are expected to be either sludge, oil saturated bottom sediments, construction fill materials and possibly sand, silt, and clay from the naturally occurring unconsolidated materials beneath the lagoon sediment.

1.5 Sample Designation

All samples will be designated with a unique sample number. The sample designation code will be as follows:

LG-SDG##-C##-##

where;

LG = Lagoon #1

SD = Sediment matrix

G## = Grid Location

C## = Core number

= Sample number

In addition, consecutive numbers (starting with 1) will be assigned to each sample to track the number of samples associated with the project.

1.6 Sediment Core Sampling Equipment

To collect cores of the bottom sediment from the Lagoon #1, a vibracore system will be employed. The system consists of a vibracore unit, tripod, tripod extension bar, core mounting heads, core removal clamps, and chain hoist. The equipment will be placed on a floating platform which will be used to float the equipment into position above the sample location point.

1.7 Sediment Core Collection Procedure

The floating platform containing the vibracore sampling equipment and accessories will be maneuvered to a transect grid intersection as defined by the proposed survey. The hatch located at the front of the platform will be opened and a three inch I.D. aluminum tube with a maximum length of 30-feet will be inserted into the water to the bottom of Lagoon #1. The vibracore head will be attached to the tube at a height of approximately 6.5 feet above the deck of the platform.

The vibracore unit will be started and idled until an all clear sign is given. The vibracore unit will be throttled-up and the aluminum-tube will be advanced until the deck of the platform interferes with the head assembly. The vibracore unit will be placed back into an idle position while the head assembly is loosened and re-attached at a height approximately 6.5 feet above the deck. The process continues until refusal is encountered or until the depth of penetration exceeds the length of the tube. Upon encountering refusal, the tube will be cut off to a convenient height above the deck, core removal clamps will be attached to the tube, and a slide hammer assembly will be placed over the tube and rest upon the clamp. The tube will then be forced down with the slide hammer until no further penetration is reached. The attachments are removed and the tube will be

cut off again at a height just above deck level or just below deck level. If a set of tubes are to be advanced before any extraction, then the tube is cut off below the deck. If the tube is to be removed immediately, then the tube is cut off above the deck.

At this point the depth to sediment will be measured both inside and outside the tube with a weighted measuring tape and the information will be recorded. The measurements are required to provide the depth to bottom elevation and to determine the percent recovery of the sediment core. The top of the tube will then be sealed using a plastic shelby tube cap with duct tape to maximize core recovery by creating a vacuum within the tube when it is being removed.

The sealed tube will then be surveyed for elevation of the top of the tube and for location within the grid system.

Following this procedure, the sealed tube will then be removed. A tripod will be positioned over the tube, a core removal clamp attached to the tube, and a chain hoist secured around the removal clamp. The tube will be pulled out of the sediment by using the hoist and lowering the clamp as needed.

Once the bottom of the tube is free from the sediment, the tube is manually tipped and pulled onto the platform as quickly as possible to maximize core recovery. The bottom end of the tube is capped and taped like the top.

The capped tube will be labeled with Grid Square Location Number, the sediment core number, and a directional arrow for the top portion of the sample. The overall length of the tube will be measured and recorded along with time of sediment core recovery. Depending upon the depth of water at the core location, the top of the tube may be shortened to remove excess water in order to minimize mixing during transportation. If the top is shortened, the tube will be sealed again with the same procedure as described above. Completed core tubes will be positioned and transported with the top end elevated to maintain the relative position of the sediment recovered.

In the likelihood that floating oil is present at the surface of the lagoon, it may be necessary to place a retrievable cork or knock out plug into the bottom of the tube prior to insertion into the lagoon. The cork will prevent oil from entering the tube at the surface of the lagoon. Once the tube is safely below the floating product layer, the cork will be "knocked out" and the tube will be ready for sediment sampling. This method should adequately assist in the determination of representative samples from the lagoon bottom.

1.8 Sediment Core Description and Sampling for Analysis

All sediment cores will be transported to a central staging area to be opened, sampled, and described. The staging area will consist of a containment area, a wooden trough used for cutting open the tubes, a sample-description table, and drums for the disposal of solids, liquids and personal protective equipment generated during sediment core description and sampling.

The containment area will consist of a wooden frame lined with six-mil plastic. Walkways made of wooden pallets will cross the area to preserve the integrity of the plastic liner. Tube cutting, core description, sampling, and decontamination of sampling equipment will take place within this area.

The wooden cutting trough will be lined with plastic before placing a tube within it. The trough will be sized to prevent movement of the tube during cutting. Each tube will be cut lengthwise, rotated approximately 120 degrees and cut lengthwise again. The aluminum tubes will be cut with a power saw. The blade will be set to a depth that barely cuts through the aluminum tube and causes minimal disturbance to the sediment. The tube will then be lifted out (2 or 3 people depending of length of sediment core recovery) and placed upon a plastic-lined description table.

Once the core tube is opened, it will be readied for the project geologist. The project geologist will measure core recovery, monitor organic vapor per every one foot of sediment recovery by using an organic vapor analyzer (OVA), describe the sediment core according to grain-size, lamination, structure, and general lithology. The sediment will be defined and classified according to the ASTM D 2488 method for the visual identification of soils and color will be assigned using the Munsell color chart. In addition, the sample cores will be checked for the presence of oils, construction debris and other unnatural materials.

Where volatile organic compound (VOC) analysis is required, a VOC sample will be collected from the zone which registered the highest organic vapor reading. VOC sample collection will precede core description in order to prevent any volatilization of gasses from the sampling process. Total petroleum hydrocarbon (TPH) samples will be collected from each distinctly separate stratigraphic zone from each sediment core. In addition, PCBs will be pre-screened by using field kits.

Sediment remaining after sediment core description and sampling will be placed in 5-gallon buckets and labeled with site ID, date and time. The method of storage has not yet been defined by Canton Drop Forge. If archive samples are needed, then the remaining sediment from each individual core should be contained separately from other cores in 5-gallon plastic buckets (this would also hold true if separate horizons were identified and sampled individually). If there is no long term need for additional sediment from Lagoon #1, then the remaining sediment could be placed in 55-gallon open top drums and stored until an appropriate disposal method has been chosen.

Used aluminum tubes will be power washed at the decontamination pad, cut into five to eight foot lengths and staged in an area designated by Canton Drop Forge for ultimate disposal.

1.9 Sample Analysis

Based on a site meeting between Mr. John DiNunzio of FBA Environmental and Mr. Keith Houseknecht of Canton Drop Forge on July 20, 1994, chemical analysis will be subcontracted to an OEPA certified laboratory by FBA Environmental. FBA Environmental proposes to use Zande Environmental Service, Inc. of Columbus, Ohio.

The following constituents will be sent to Zande for chemical analysis: metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver); semi-volatile organic compounds (SVOCs) using Method 8270. SVOC and metals analysis will be performed at a frequency of 20% of the total analytical samples collected. A minimum of one TPH sample will be collected from each sediment core. The TPH samples will be analyzed using Method 8015 in order to eliminate erroneous impacts from methagenic carbon compounds when Method 418.1 is used. A VOC sample will be collected from the zone which registered the highest organic vapor reading in each sediment core collected. VOC analysis will be completed by using Method 8240. In addition, polychlorinated biphenyl (PCBs) will be pre-screened in the field using Dextsil's PCB Screening Kit. Positive detection of PCBs with the pre-screening kits will be confirmed by the laboratory using Method 8080. TCLP and flash point samples should also be analyzed to determine the hazardous nature of the materials collected from Lagoon #1. These samples can be collected from either the 5-gallon buckets or 55-gallon drums which will contain excess sediment materials. The proposed analytical sampling program will supply necessary information as to the chemical nature of the sediments and supply potential BTU content information if remedial design and ultimate disposal is thought to include incineration. In addition, this arrangement reduces the analytical costs incurred by Canton Drop Forge while still providing defensible data for future closure activities. However, if Lagoon Closure is an imminent activity, State or Federal Agencies may need to be aware of this sampling plan prior to Lagoon Characterization. Please refer to Table 2 which outlines the proposed sampling arrangement for this project.

1.10 Sample QA/QC

Prior to field sampling activities, a coordination meeting between Canton Drop Forge and FBA Environmental will clarify the scope of services, grid size and level of quality assurance during the investigation. However, in the interim FBA Environmental proposes the following:

That field replicate sample be collected on a frequency of 10% of total samples collected. Field replicates verify laboratory precision and are usually required when dealing with State or Federal Agencies.

Where VOCs are proposed as an analytical parameter, trip blanks should be included in the sample shuttles to check for outside contaminants which render samples invalid due to VOC contamination during sample shuttle transport or storage. To save money on laboratory expenses, trip blanks will only be sampled if there are VOC detections in the sediment samples sent in with the sample shuttles.

1.11 Sample Transfer and Chain-of-Custody

The analytical laboratory will provide all sample containers for the collection of sediment samples. The appropriate preservatives associated with the required analysis will be included with the sample jars.

FBA Environmental will use strict Chain-of-Custody procedures to track the sample from the time of collection to the time of delivery to the laboratory.

1.11 Decontamination

All sample cores will be steam cleaned prior to use in Lagoon #1. The aluminum tubes may contain cutting oils from the manufacturer which may invalidate the analytical results obtained by the laboratory. Spent tubes will also be steam cleaned to remove all oils and residual sediments from the tubes.

The equipment used to collect samples from the sediment cores will be decontaminated. The equipment will be cleaned in an Alconox or Liquinox detergent, double rinsed in potable water and receive a final rinse of deionized water.

The sampling equipment will be decontaminated between each sediment core collection. All decontamination water will be contained within 55-gallon drums and staged at the sample description area for ultimate disposal. A grab sample will be collected from the decontamination water to test for the same constituents as the sediment with the exception of TCLP and flash point.

NOTE: During this project, no water samples will be collected from the lagoon or ground water beneath the lagoon. However, based on the findings of our initial laboratory results, a decision may be made to increase the amount of QA/QC related sampling to verify field procedures as well as laboratory methodologies. If Canton Drop Forge intends to submit the final Lagoon Characterization Report to a enforcement Agency in the future, it may be prudent to develop a Quality Assurance Plan to verify test methods and field procedures. In addition, if materials are found to be of a hazardous nature, increased sampling of waste materials may be necessary for proper disposal.

**CANTON DROP FORGE
PROPOSED VIBRACORING LOCATIONS
AT SLUDGE LAGOON #1**

FBA ENVIRONMENTAL, INC.

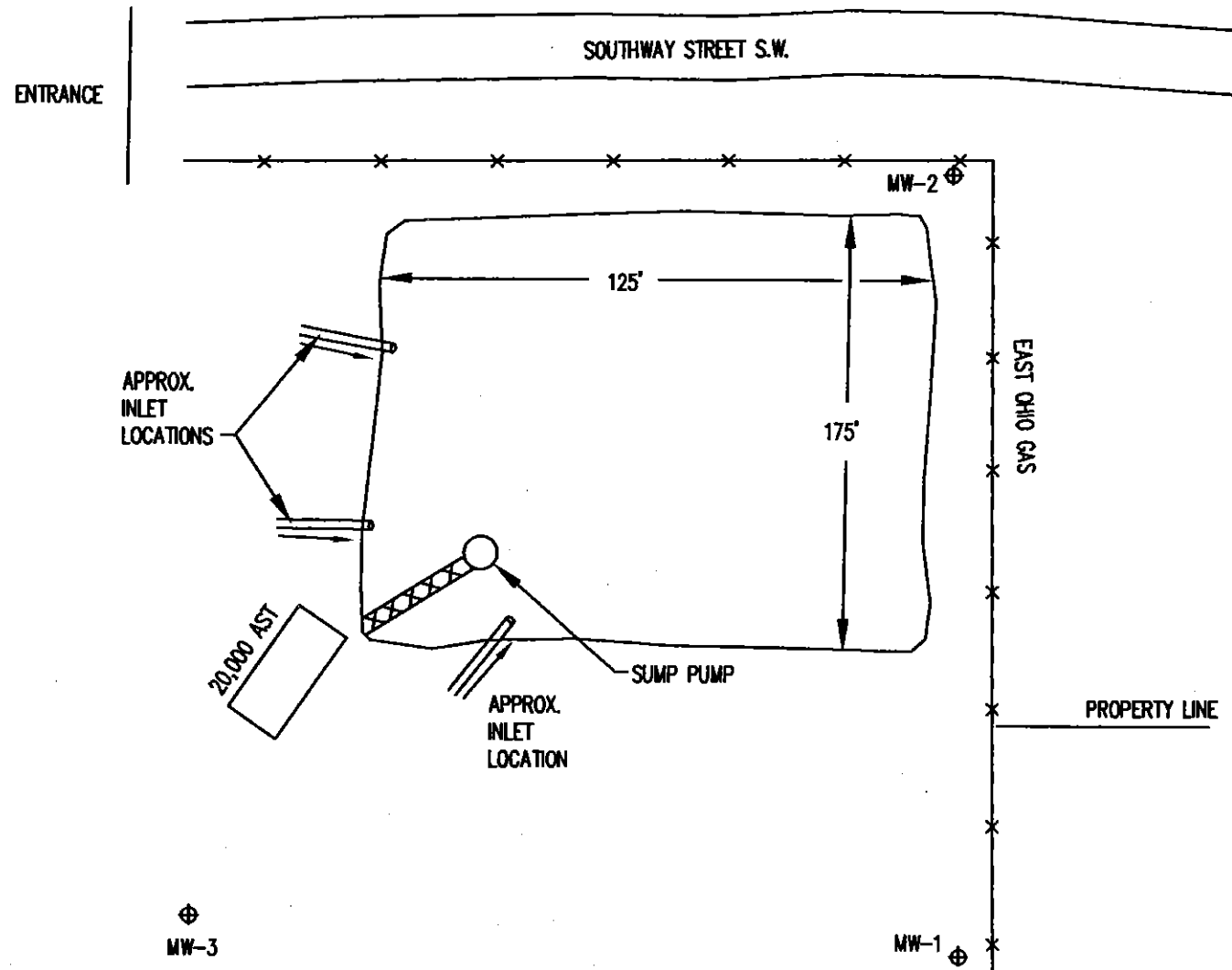
COLUMBUS, OHIO

PLATE 1

LEGEND

⊕ MONITORING WELL

NOT TO SCALE



CD F000759

CANTON DROP FORGE
LAGOON
GRID SET-UP
FBA ENVIRONMENTAL, INC.
COLUMBUS, OHIO
PLATE 2

4' X 6' GRID

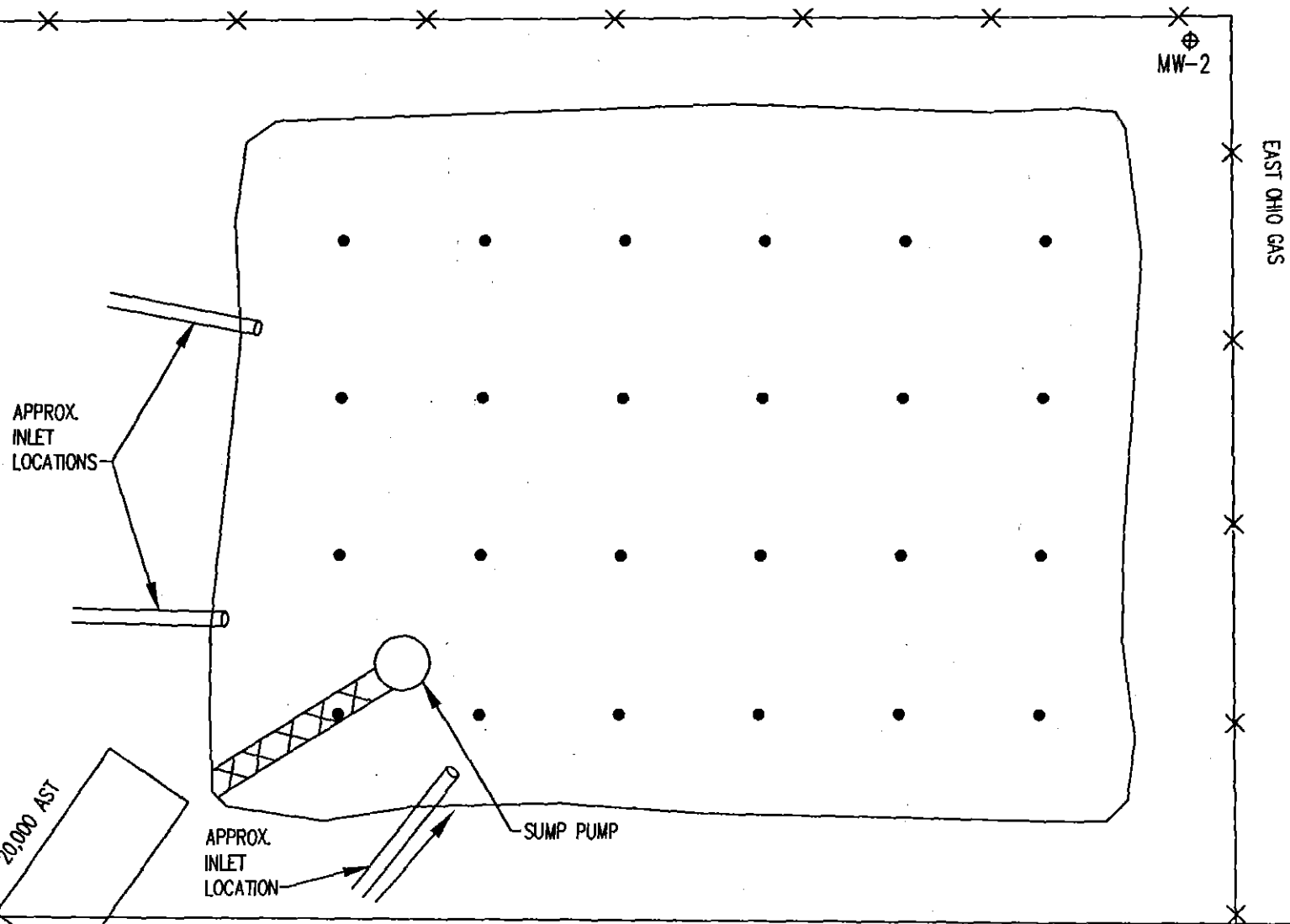
24 SEDIMENT CORE LOCATIONS

NOTE: GRID MAY BE MODIFIED BY LOCATING SEDIMENT
CORES NEAR INLETS TO LAGOON.

LEGEND

⊕ MONITORING WELL

NOT TO SCALE



ATTACHMENT B
HEALTH AND SAFETY PLAN

18.0 Health and Safety Procedures for the Field

All personnel will read the Health and Safety Procedures for the Field, section 18 in the QAPP, prior to working in the field. Any questions they have will be directed to the Site Safety Officer and answered before signing the acknowledgment.

18.1 Personnel Responsibilities For Site Safety

18.1.1 Site Coordinator

The responsibilities of the Site Coordinator are:

- 18.1.1.1 To ensure that all personnel allowed to enter the site (i.e., the EPA, contractors, state officials, visitors) are aware of the potential hazards associated with the substances known or suspected to be on the site, and with the potential hazards on the boats;
- 18.1.1.2 To ensure that said personnel are aware of the provisions of this plan and are instructed in the safety practices defined in the plan, including its emergency procedures;
- 18.1.1.3 To ensure that the appropriate safety equipment is available to all personnel on the site;
- 18.1.1.4 To direct the safety monitoring efforts of the Site Safety Officer; and
- 18.1.1.5 To correct any work practices or conditions under his control that may result in exposure to hazardous substances or injury to personnel.

18.1.2 Site Safety Officer

The Safety Officer is responsible for implementing the safety plan at the site. The Safety Officer shall:

- 18.1.2.1 Monitor compliance of workers relative to pre-established personnel protection levels (i.e., use of necessary clothing and equipment) to ensure the safety of personnel;
- 18.1.2.2 Notify the Site Coordinator of discrepancies or violations of the safety plan;

CDF000761

- 18.1.2.3 Evaluate weather and chemical hazard information, and recommend to the Site Coordinator any necessary modification of work plans and personal protection levels to maintain personnel safety. Recommend stopping work if any operation threatens worker or public health or safety;
- 18.1.2.4 Select protective clothing and equipment and ensure they are properly stored and maintained; and
- 18.1.2.5 Know emergency procedures, evacuation routes, and the telephone numbers of the ambulance, local hospital, poison control center, fire department, and police department.
- 18.1.3 Field Team Leader
 - 18.1.3.1 In the absence of the Site Coordinator and Site Safety Officer, the Field Team Leader will be responsible for enforcing safety procedures; and
 - 18.1.3.2 Coordinate with Site Safety Officer in determining protection levels and reviewing site conditions affecting health and safety.

18.2 General Safety Practices

- 18.2.1 Personnel requiring the use of respiratory protective equipment should not have excessive facial hair, which interferes with a satisfactory fit of the mask-to-face seal.
- 18.2.2 Contact with contaminated surfaces or surfaces suspected of being contaminated, should be avoided. Do not: walk through puddles, mud, and other discolored surfaces; kneel on the ground; or lean, sit or place equipment on drums, containers, vehicles or the ground.
- 18.2.3 Medicine and alcohol can increase the effects of exposure to toxic chemicals. Unless specifically approved by a qualified physician, prescription drugs should not be taken by personnel assigned to operations where the potential for absorption, inhalation, or ingestion of toxic substances exists.
- 18.2.4 Drinking and driving is prohibited. Driving at excessive speeds is prohibited.
- 18.2.5 No person will work alone on a potentially dangerous site.

- 18.2.6 Proper preparation must be undertaken before leaving for a site visit. Each person will have access to a first aid kit, fire extinguisher, flashlight, and proper clothing, which will include coveralls, hard hat gloves, safety glasses, a Type I, II, or III PFD and a respirator.
- 18.2.7 All personnel are required to contact the site manager upon arriving at or when leaving the site. This is especially important when working alone.
- 18.2.8 All personnel are required to wear disposable gloves when in contact with water or sediment samples.
- 18.2.9 A shirt and long pant must be worn at all times.
- 18.2.10 Personal flotation devices must be worn at all times while on the boat(s), on the shore, or any other place where it is possible to fall into the water.
- 18.2.11 Safety glasses must be worn while on site.
- 18.2.12 No person shall wear contact lenses while working in the field.
- 18.2.13 Eating, drinking, chewing gum, chewing tobacco, smoking, or any practice that increase the probability of hand-to-mouth transfer or ingestion of material is prohibited in any area designated as contaminated.
- 18.2.14 Hands and face must be thoroughly washed upon leaving the work area and particularly before eating or drinking.
- 18.2.15 Skin abrasions must be thoroughly protected to prevent chemicals from penetrating the abrasion.
- 18.2.16 Adverse climate conditions - cold or hot - are important considerations in planning and conducting site operations. The effects of ambient meteorological conditions on personnel can cause physical discomfort, loss of efficiency, personal injury and increase accident probability. Heat stress, due to protective clothing decreasing body ventilation, is an important factor. The following recommendations will help reduce heat stress. Their applicability is dependent on evaluating the conditions particular to a specific project.
 - 18.2.16.1 Provide plenty of liquids to replace loss of body fluids. Employees should replace water by drinking frequently (outside of work area).

- 18.2.16.2 Establish a work schedule that will provide sufficient rest periods for cooling down.
- 18.2.16.3 Heat stress symptoms should be observed for all levels of protection, but especially in Level A and B.

18.3 Fire Prevention

- 18.3.1 Approved safety cans will be used to transport and store flammable liquids.
- 18.3.2 All gasoline and diesel-driven engines requiring refueling must be shut down and allowed to cool before filling.
- 18.3.3 Smoking is not allowed during any operations in close proximity to fugitive petroleum products or solvents in free-floating, dissolved or vapor forms, or other flammable liquids. Smoking is not allowed on the boats at any time. Smoking is allowed only in designated locations during authorized lunch periods and work breaks.
- 18.3.4 No open flame or spark is allowed in any area containing petroleum products, or other flammable liquids.
- 18.3.5 Two 2-1/2 pound Halon fire extinguishers will be available on the pontoon boat(s).

18.4 Electrical Equipment

- 18.4.1 The electrical generator will be isolated electrically from the boat frame with rubber blocks and mats, equipped with ground fault outlets, and bolted securely in place.
- 18.4.2 All electrical equipment must be equipped with three-wire grounded leads.

18.5 Boat Safety

- 18.5.1 The 30' pontoon boat(s) will have the following safety equipment on board at all times:
 - one Type IV throwable PFD
 - two 2-1/2 pound Halon fire extinguishers
 - one air-powered horn
 - one 2' x 2' orange distress flag

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- first aid kit
- portable eye wash station
- anchor with ~ 100' of line

- 18.5.2 The working decks of the pontoon boat(s) will be covered with a non-skid surface. Care will be taken to minimize slippery surface conditions.
- 18.5.3 The pontoon boat(s) will have side railings, except where they will interfere with the work to be done.
- 18.5.4 Each person, while on board any boat, will wear their PFD.
- 18.5.5 In the event of an electrical storm or rough surface conditions, work will stop and the personnel will go ashore.
- 18.5.6 All personnel will have basic training in boat safety and in the operation of and preventative maintenance of outboard motors.

18.6 Personal Protective Equipment

- 18.6.1 Each member of the field crew will have for their personal use the following equipment:
- Tyvek outer coveralls
 - disposable vinyl gloves
 - rubber outerboots
 - full face respirators equipped with dust/mist and organic vapor cartridges
 - hard hat
 - safety glasses
- 18.6.2 Organic vapor concentrations will be continuously monitored with a MicroTip PID. If at any time the organic vapor concentrations exceed 50 ppm, all personnel will use full face respirators until such time that the organic vapor concentrations have not exceeded 50 ppm for one half hour.
- 18.6.3 If at any time the organic vapor concentrations exceed 250 ppm, air supplied respirators will be utilized by all personnel until such time that the organic vapor concentrations have not exceeded 50 ppm for one half hour.

18.6.4 All personnel directly involved with the coring operation will utilize at a minimum the following personal protective equipment:

- tyvek outer coveralls
- rubber outerboots
- disposable vinyl gloves
- hard hat
- safety glasses

18.6.5 All personnel involved in cutting open the aluminum core tubes will utilize the following personal protective equipment at a minimum:

- Tyvek outer coveralls
- rubber outerboots
- disposable vinyl gloves
- safety glasses

18.7 Review of Exposure Symptoms

Symptoms of exposure to the chemicals of concern should be reviewed by all site personnel. The Site Safety Officer or designated field worker should be watchful for outward evidence of changes in worker health. These outward symptoms may include skin irritations, skin discoloration, eye irritations, muscular soreness, fatigue, nervousness or irritability, intolerance to heat or cold, or loss of appetite. Employees should routinely be asked to assess their general state of health during the project.

18.8 First Aid Procedures and Emergency Treatment

In all cases of poisoning, follow standard procedures for poison management, first aid, and cardiopulmonary resuscitation. Whenever transporting a poisoned person to a hospital, bring the container, label, or other information concerning the product (without delaying transport) to assist medical personnel with diagnosis and treatment. Four different routes of exposure and their respective first aid/poison managements are outlined below.

18.8.1 Ingestion:

1. Notify the Site Safety Officer
2. Call the Poison Information Center 1-800-682-9211.
3. Call the ambulance service if necessary (Name Number).

18.8.2 Inhalation:

1. Stop exposure by moving person from contaminated area to clean air area.
2. Notify the Site Safety Officer.
3. Call the Poison Information Center (1-800-682-9211).
4. Call the ambulance service if necessary (Name Number).
5. If necessary, transport person to an emergency medical facility promptly.

18.8.3 Skin:

1. Wash off skin immediately with a large amount of water; use soap if available.
2. Remove any contaminated clothing and rewash skin.
3. Notify Site Safety Officer

18.8.4 Eyes:

1. Gently rinse eye immediately, using portable eyewash station for fifteen minutes, if possible, with eyelids held open.
2. Never permit the eyes to be rubbed.
3. Notify Site Safety Officer
4. Transport person to an emergency medical facility promptly.

18.9 Emergency Telephone Numbers

In the event of an emergency, the following local sources of assistance are available.

18.9.1 Hospitals

_____ Hospital	_____
_____ Hospital	_____
_____ Emergency Room	_____

18.9.2 _____ Fire Department _____

18.9.3 _____ Ambulance Service _____

18.9.4 Poison Control Center 1-800-362-9922

18.9.5 _____ Emergency Response _____

18.9.6 _____ Security _____

18.9.7 EPA Emergency Response _____

18.9.8 Contractor Office _____

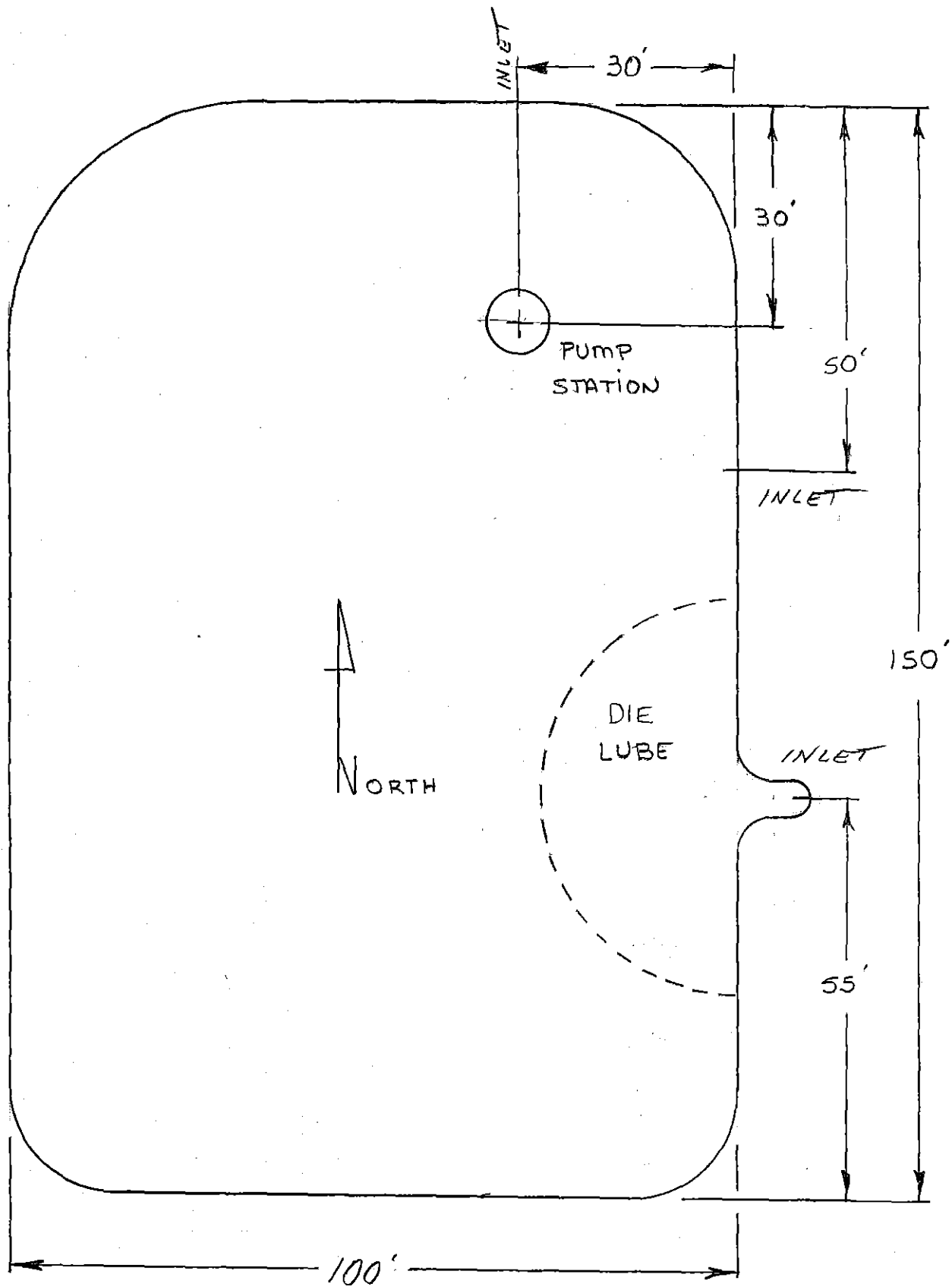
18.10 Acknowledgment

I, _____ have read the Site Safety Plan pertaining to the
_____ *Name of Site* _____. I understand the physical and chemical
hazards present at the site and any questions I had regarding the plan have been
satisfactorily answered. I hereby certify that I have been trained under 29. CFR
1910.120 and are currently under a medical monitoring program sponsored by my
employer.

I have been fitted and properly instructed on respirators, its uses and limitations. I, also,
understand that it is my responsibility to properly clean, maintain and store my respirator
in a clean area unless other arrangements have been made to assure maintenance and care
of the respiratory protection.

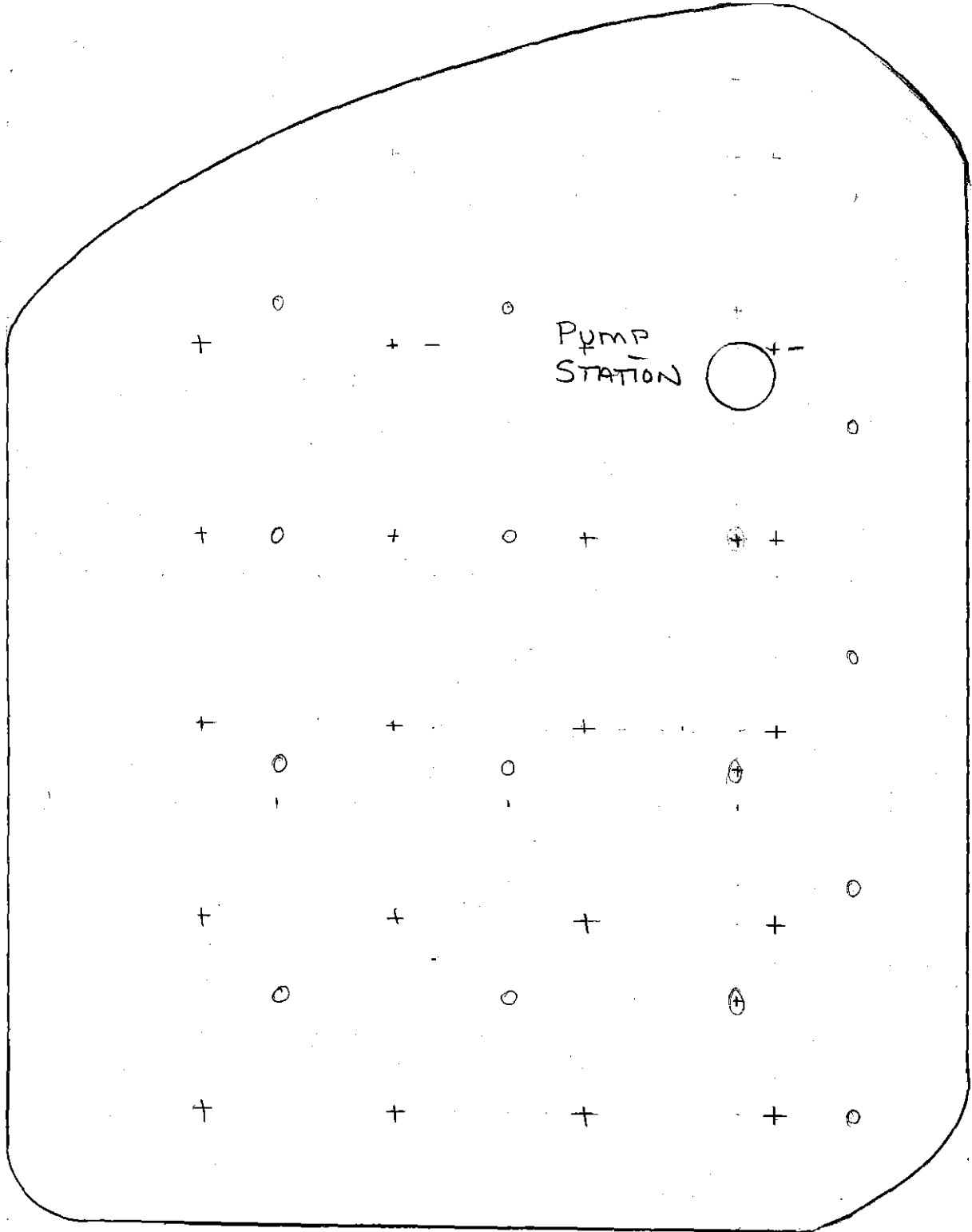
Signature _____
Date _____

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2(b)
3

LAGOON #1
ALL DIMENSIONS APPROX.
KETH
8/29/94



APPROX 125' x 160'

o 19
+ 24

2(b)
3



TELECOPIER COVER SHEET

2(6)
3

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CITY: N. CANTON
PHONE: 499-8817

FROM:

NAME: KETH HOUSEKNECHT
FIRM: CANTON DROP FORGE
CITY: CANTON, OHIO

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(518) 377-8854

Material Safety Data Sheets Collection:

Sheet No. 801
Hexachlorobutadiene

Issued: 3/92

Section 1. Material Identification

Hexachlorobutadiene (Cl₂C=CCl=CCl₂) Description: Derived as a by-product of chlorination of various hydrocarbons such as tetrachloroethylene, trichloroethylene, and carbon tetrachloride. Used as a solvent for elastomers, a heat transfer liquid, a transformer and hydraulic fluid, a wash liquor for removing C₁ and higher hydrocarbons, a chemical intermediate for fluorinated lubricants and rubber compounds, and a fluid for gyroscopes; and in pesticides. Other Designations: CAS No. 87-68-3, Dolon-Pur, HCBd, hexachloro-1,3-butadiene, perchlorobutadiene. Manufacturer: Contact your supplier or distributor. Consult latest *Chemical Week Buyers' Guide*TM for a suppliers list.

R 1
I 4
S 2*
K 1
* Skin absorption

37
NFPA
2 1
1
HMIS
H 2
F 1
R 1
PPG†
† Sec. 8

Cautions: Hexachlorobutadiene is toxic by inhalation, ingestion, and skin absorption, and is an experimental carcinogen and mutagen. This liquid is slightly combustible.

Section 2. Ingredients and Occupational Exposure Limits

Hexachlorobutadiene, ca 98%

1990 OSHA PEL

8-hr TWA: 0.02 ppm (0.24 mg/m³)

1990 DFG (Germany) MAK

Suspected Carcinogen

1985-86 Toxicity Data*

Rat, oral, LD₅₀: 90 mg/kg; toxic effects not yet reviewed

Mouse, inhalation, LC₅₀: 235 ppm/4 hr; toxic effects not yet reviewed

Rat, oral, TD₀₁: 15 g/kg given continuously over a 2-year period

produced kidney tumors and other effects on ureter and bladder

Rabbit, skin: 810 mg applied for 24 hr produced moderate irritation

1991-92 ACGIH TLV

TWA: 0.02 ppm (0.21 mg/m³)

1990 NIOSH REL

None established

* See NIOSH, RTECS (E10700000), for additional irritation, mutation, reproductivity, tumorigenic, and toxicity data.

Section 3. Physical Data

Boiling Point Range: 410 to 428 °F (210 to 220 °C)

Freezing Point Range: -2.2 to -7.6 °F (-19 to -22 °C)

Vapor Pressure: 22 mm Hg at 212 °F (100 °C).

500 mm Hg at 392 °F (200 °C)

Vapor Density (air = 1): 8.99

Refraction Index: 1.5542 at 68 °F (20 °C)

Molecular Weight: 260.74

Density: 1.675 at 59.9 °F (15.5 °C)

Water Solubility: Insoluble

Other Solubilities: Soluble in alcohol and ether and miscible with many resins

% in Saturated Air: 0.037 at 77 °F (25 °C)

Viscosity: 2.447 cP at 99.86 °F (37.7 °C), 1.131 cP at 210.02 °F (98.9 °C)

Appearance and Odor: Clear, colorless, heavy liquid with a mild turpentine odor. Half the people questioned could detect 1 ppm. *Caution!* Detection of 1 ppm is inadequate for preventing overexposure.

Section 4. Fire and Explosion Data

Flash Point: None reported

Autoignition Temperature: 1130 °F (610 °C)

LEL: None reported

UEL: None reported

Extinguishing Media: Hexachlorobutadiene is slightly combustible. For small fires, use dry chemical, water spray, or regular foam. For large fires, use water spray, fog, or regular foam. *Do not scatter fire* with more water than necessary to put out fire.

Unusual Fire or Explosion Hazards: Container may explode in heat of fire.

Special Fire-fighting Procedures: Since fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. If possible without risk, remove container from fire. Fight fire from maximum distance. Stay away from ends of tanks. Structural firefighters' protective clothing is ineffective for fires involving hexachlorobutadiene. Be aware of runoff from fire control methods. Do not release to sewers or waterways. Heavy vapors from a fire may accumulate in low areas (pits, etc.) and remain hazardous after the fire is extinguished.

Section 5. Reactivity Data

Stability/Polymerization: Hexachlorobutadiene is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur.

Chemical Incompatibilities: None reported.

Conditions to Avoid: Generation of vapors and exposure to excessive heat.

Hazardous Products of Decomposition: Thermal oxidative decomposition of hexachlorobutadiene can produce carbon dioxide (CO₂) and toxic chloride fumes (Cl₂).

Section 6. Health Hazard Data

Carcinogenicity: In 1990 reports, these groups classify hexachlorobutadiene: IARC (Group 3), NIOSH (Suspected Carcinogen), and ACGIH (A2, Suspected Human Carcinogen).

Summary of Risks: Hexachlorobutadiene is a NIOSH-suspected carcinogen, potentially causing kidney and lung cancer. Most available toxicity data are based on animal studies. According to these studies, a 0.13-ppm air concentration has no effect on humans, and 1.3 ppm produces reversible changes. In the one human toxicity report found, 205 vineyard workers exposed seasonally to hexachlorobutadiene at 0.8 to 30 mg/m³

Continue on next page

No. 801 Hexachlorobutadiene 3/92

Section 6. Health Hazard Data, continued

and polychlorobutane-80 at 0.12 to 6.7 mg/m³ showed a number of toxic effects that led to hypotension, cardiac disease, nervous function disturbances, chronic bronchitis, and hepatitis.

Medical Conditions Aggravated by Long-Term Exposure: None reported.

Target Organs: Kidney and liver (in animals).

Primary Entry Routes: Inhalation, ingestion, and skin absorption.

Acute Effects: Based on animal data and the one human study, exposure to hexachlorobutadiene could cause irritation of eyes, nose, throat, and respiratory tract, and kidney and nervous system damage.

Chronic Effects: Exposure to hexachlorobutadiene could possibly lead to cardiac disease, chronic bronchitis, and hepatitis.

FIRST AID

Eyes: Gently lift eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Do not allow victim to rub or keep eyes tightly closed. Consult a physician immediately.

Skin: Quickly remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. For reddened or blistered skin, consult a physician. Wash affected area with soap and water.

Inhalation: Remove exposed person to fresh air and support breathing as needed.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. Consult a poison control center. Unless the poison control center advises otherwise, have that conscious and alert person drink 1 to 2 glasses of water, then induce vomiting.

After first aid, get appropriate in-plant, paramedic, or community medical support.

Note to Physicians: Consider monitoring acutely and chronically exposed patient for renal damage. Since at least some toxicity is presumed reversible, use supportive care.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Prepare a spill control plan. Notify safety personnel, isolate and ventilate area, deny entry, and stay upwind. Shut off all ignition sources—no flames, flares, or smoking in hazard area. For small spills, take up with earth, sand, vermiculite, or other absorbent, noncombustible material and place in suitable containers for later disposal. For large spills, dike far ahead of liquid spills for later disposal. Cleanup personnel should wear fully encapsulating, vapor-protective clothing to prevent inhalation and skin exposure. Follow applicable OSHA regulations (29 CFR 1910.120).

Environmental Transportation: When released into the atmosphere, hexachlorobutadiene reacts with hydroxyl radicals and ozone and has a half-life of 3.24 hr. HCDB should biodegrade in natural waters since 100% degradation occurred in 7 days in an aerobic bath culture. Its estimated half-life in river water is 3 to 30 days, and 30 to 300 days in lake and groundwater.

Environmental Degradation: Ecotoxicity values: fathead minnow, LC₅₀, 0.09 mg/L/96 hr; *Poecilia reticulata* (guppy), LC₅₀, 0.4 ppm/14 days.

Soil Absorption/Mobility: Hexachlorobutadiene absorbs strongly to soil and does not rapidly migrate, but moves more rapidly in sandy soils.

Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.

EPA Designations

Listed as a RCRA Hazardous Waste (40 CFR 261.33): No. U128

Listed as a CERCLA Hazardous Substance* (40 CFR 302.4): Reportable Quantity (RQ), 1 lb (0.454 kg) [* per RCRA, Sec. 3001 and Clean Water Act, Sec. 307(a)]

SARA Extremely Hazardous Substance (40 CFR 355): Not listed

Listed as a SARA Toxic Chemical (40 CFR 372.65)

OSHA Designations

Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A)

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Since contact lens use in industry is controversial, establish your own policy.

Respirator: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for the given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. **Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.** If respirators are used, OSHA requires a respiratory protection program that includes at least: training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Other: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent all skin contact.

Ventilation: Provide general and local exhaust ventilation systems to maintain airborne concentrations below the OSHA PEL (Sec. 2). Local exhaust ventilation is preferred since it prevents contaminant dispersion into the work area by controlling it at its source.⁽¹⁰⁷⁾

Safety Stations: Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities.

Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder contaminated work clothing before wearing.

Remove this material from your shoes and clean personal protective equipment. Disposable outer garments may be a preferable alternative to prevent employee exposure.

Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Avoid physical damage to containers. Store in cool, dry, well-ventilated area away from strong heat sources.

Engineering Controls: To reduce potential health hazards, use sufficient dilution or local exhaust ventilation to control the airborne contaminants and to maintain concentrations at the lowest practical level.

Administrative Controls: Consider preplacement and periodic medical examinations of exposed workers. Include urinary excretion of coproporphyrins in medical exams. Training for hazardous communication is very important and workers should be educated about safe handling of a suspected carcinogen.

Transportation Data (49 CFR 172.102)

MO Shipping Name: Hexachlorobutadiene

D No.: UN2279

MO Hazard Class: 6.1

MO Label: St. Andrews

MDG Packaging Group: III

SDS Collection References: 71, 89, 103, 127, 132, 136, 142, 153, 159, 161-164

prepared by: M Gannon, BA; Industrial Hygiene Review: DJ Wilson, CIH; Medical Review: AC Darlington, MPH, MD; Edited by: JR Stuart, MS

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Material Safety Data Sheets Collection:

Sheet No. 801
Hexachlorobutadiene

Issued: 3/92

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R	1		NFPA H 2 F 1 R 1 PPG† † Sec. 8
I	4		
S	2*		
K	1		
* Skin absorption			

Cautions: Hexachlorobutadiene is toxic by inhalation, ingestion, and skin absorption, and is an experimental carcinogen and mutagen. This liquid is slightly combustible.

Section 2. Ingredients and Occupational Exposure Limits

Hexachlorobutadiene, ca 98%

1990 OSHA PEL **1990 DFG (Germany) MAK**
8-hr TWA: 0.02 ppm (0.24 mg/m³) Suspected Carcinogen

1991-92 ACGIH TLV **1990 NIOSH REL**
TWA: 0.02 ppm (0.21 mg/m³) None established

1985-86 Toxicity Data*

Rat, oral, LD₅₀: 90 mg/kg; toxic effects not yet reviewed
Mouse, inhalation, LC₅₀: 235 ppm/4 hr; toxic effects not yet reviewed
Rat, oral, TD₀₁: 15 g/kg given continuously over a 2-year period
produced kidney tumors and other effects on ureter and bladder
Rabbit, skin: 810 mg applied for 24 hr produced moderate irritation

* See NIOSH, RTECS (EJ0700000), for additional irritation, mutation, reproductivity, tumorigenic, and toxicity data.

Section 3. Physical Data

Boiling Point Range: 410 to 428 °F (210 to 220 °C)
Freezing Point Range: -2.2 to -7.6 °F (-19 to -22 °C)
Vapor Pressure: 22 mm Hg at 212 °F (100 °C),
500 mm Hg at 392 °F (200 °C)
Vapor Density (air = 1): 8.99
Refraction Index: 1.5542 at 68 °F (20 °C)

Molecular Weight: 260.74
Density: 1.675 at 59.9 °F (15.5 °C)
Water Solubility: Insoluble
Other Solubilities: Soluble in alcohol and ether and miscible with many resins
% in Saturated Air: 0.037 at 77 °F (25 °C)
Viscosity: 2.447 cP at 99.86 °F (37.7 °C), 1.131 cP at 210.02 °F (98.9 °C)

Appearance and Odor: Clear, colorless, heavy liquid with a mild turpentine odor. Half the people questioned could detect 1 ppm. **Caution!** Detection of 1 ppm is inadequate for preventing overexposure.

Section 4. Fire and Explosion Data

Flash Point: None reported **Autoignition Temperature:** 1130 °F (610 °C) **LEL:** None reported **UEL:** None reported

Extinguishing Media: Hexachlorobutadiene is slightly combustible. For small fires, use dry chemical, water spray, or regular foam. For large fires, use water spray, fog, or regular foam. *Do not scatter fire* with more water than necessary to put out fire.

Unusual Fire or Explosion Hazards: Container may explode in heat of fire.

Special Fire-fighting Procedures: Since fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full facepiece operated in pressure-demand or positive-pressure mode. If possible without risk, remove container from fire. Fight fire from maximum distance. Stay away from ends of tanks. Structural firefighters' protective clothing is ineffective for fires involving hexachlorobutadiene. Be aware of runoff from fire control methods. Do not release to sewers or waterways. Heavy vapors from a fire may accumulate in low areas (pits, etc.) and remain hazardous after the fire is extinguished.

Section 5. Reactivity Data

Stability/Polymerization: Hexachlorobutadiene is stable at room temperature in closed containers under normal storage and handling conditions. Hazardous polymerization cannot occur.

Chemical Incompatibilities: None reported.

Conditions to Avoid: Generation of vapors and exposure to excessive heat.

Hazardous Products of Decomposition: Thermal oxidative decomposition of hexachlorobutadiene can produce carbon dioxide (CO₂) and toxic chloride fumes (Cl₂).

Section 6. Health Hazard Data

Carcinogenicity: In 1990 reports, these groups classify hexachlorobutadiene: IARC (Group 3), NIOSH (Suspected Carcinogen), and ACGIH (A2, Suspected Human Carcinogen).

Summary of Risks: Hexachlorobutadiene is a NIOSH-suspected carcinogen, potentially causing kidney and lung cancer. Most available toxicity data are based on animal studies. According to these studies, a 0.13-ppm air concentration has no effect on humans, and 1.3 ppm produces reversible changes. In the one human toxicity report found, 205 vineyard workers exposed seasonally to hexachlorobutadiene at 0.8 to 30 mg/m³

Continue on next page

No. 801 Hexachlorobutadiene 3/92

Section 6. Health Hazard Data, continued

and polychlorobutane-80 at 0.12 to 6.7 mg/m³ showed a number of toxic effects that led to hypotension, cardiac disease, nervous function disturbances, chronic bronchitis, and hepatitis.
Medical Conditions Aggravated by Long-Term Exposure: None reported.
Target Organs: Kidney and liver (in animals).
Primary Entry Routes: Inhalation, ingestion, and skin absorption.
Acute Effects: Based on animal data and the one human study, exposure to hexachlorobutadiene could cause irritation of eyes, nose, throat, and respiratory tract, and kidney and nervous system damage.
Chronic Effects: Exposure to hexachlorobutadiene could possibly lead to cardiac disease, chronic bronchitis, and hepatitis.
FIRST AID
Eyes: Gently lift eyelids and flush immediately and continuously with flooding amounts of water until transported to an emergency medical facility. Do not allow victim to rub or keep eyes tightly closed. Consult a physician immediately.
Skin: Quickly remove contaminated clothing. Rinse with flooding amounts of water for at least 15 min. For reddened or blistered skin, consult a physician. Wash affected area with soap and water.
Inhalation: Remove exposed person to fresh air and support breathing as needed.
Ingestion: Never give anything by mouth to an unconscious or convulsing person. Consult a poison control center. Unless the poison control center advises otherwise, have that conscious and alert person drink 1 to 2 glasses of water, then induce vomiting.
After first aid, get appropriate in-plant, paramedic, or community medical support.
Note to Physicians: Consider monitoring acutely and chronically exposed patient for renal damage. Since at least some toxicity is presumed reversible, use supportive care.

Section 7. Spill, Leak, and Disposal Procedures

Spill/Leak: Prepare a spill control plan. Notify safety personnel, isolate and ventilate area, deny entry, and stay upwind. Shut off all ignition sources—no flames, flares, or smoking in hazard area. For small spills, take up with earth, sand, vermiculite, or other absorbent, noncombustible material and place in suitable containers for later disposal. For large spills, dike far ahead of liquid spills for later disposal. Cleanup personnel should wear fully encapsulating, vapor-protective clothing to prevent inhalation and skin exposure. Follow applicable OSHA regulations (29 CFR 1910.120).
Environmental Transportation: When released into the atmosphere, hexachlorobutadiene reacts with hydroxyl radicals and ozone and has a half-life of 3.24 hr. HCDB should biodegrade in natural waters since 100% degradation occurred in 7 days in an aerobic bath culture. Its estimated half-life in river water is 3 to 30 days, and 30 to 300 days in lake and groundwater.
Environmental Degradation: Ecotoxicity values: fathead minnow, LC₅₀, 0.09 mg/L/96 hr; *Poecilia reticulata* (guppy), LC₅₀, 0.4 ppm/14 days.
Soil Absorption/Mobility: Hexachlorobutadiene absorbs strongly to soil and does not rapidly migrate, but moves more rapidly in sandy soils.
Disposal: Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations.
EPA Designations
 Listed as a RCRA Hazardous Waste (40 CFR 261.33): No. U128
 Listed as a CERCLA Hazardous Substance* (40 CFR 302.4): Reportable Quantity (RQ), 1 lb (0.454 kg) [* per RCRA, Sec. 3001 and Clean Water Act, Sec. 307(a)]
SARA Extremely Hazardous Substance (40 CFR 355): Not listed
 Listed as a SARA Toxic Chemical (40 CFR 372.65)
OSHA Designations
 Listed as an Air Contaminant (29 CFR 1910.1000, Table Z-1-A)

Section 8. Special Protection Data

Goggles: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Since contact lens use in industry is controversial, establish your own policy.
Respirator: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for the given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or nonroutine operations (cleaning spills, reactor vessels, or storage tanks), wear an SCBA. **Warning!** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. If respirators are used, OSHA requires a respiratory protection program that includes at least: training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.
Other: Wear chemically protective gloves, boots, aprons, and gauntlets to prevent all skin contact.
Ventilation: Provide general and local exhaust ventilation systems to maintain airborne concentrations below the OSHA PEL (Sec. 2). Local exhaust ventilation is preferred since it prevents contaminant dispersion into the work area by controlling it at its source.⁽¹⁰⁹⁾
Safety Stations: Make available in the work area emergency eyewash stations, safety/quick-drench showers, and washing facilities.
Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder contaminated work clothing before wearing. Remove this material from your shoes and clean personal protective equipment. Disposable outer garments may be a preferable alternative to prevent employee exposure.
Comments: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9. Special Precautions and Comments

Storage Requirements: Avoid physical damage to containers. Store in cool, dry, well-ventilated area away from strong heat sources.
Engineering Controls: To reduce potential health hazards, use sufficient dilution or local exhaust ventilation to control the airborne contaminants and to maintain concentrations at the lowest practical level.
Administrative Controls: Consider preplacement and periodic medical examinations of exposed workers. Include urinary excretion of coproporphyrins in medical exams. Training for hazardous communication is very important and workers should be educated about safe handling of a suspected carcinogen.
Transportation Data (49 CFR 172.102)
IMO Shipping Name: Hexachlorobutadiene
ID No.: UN2279
IMO Hazard Class: 6.1
IMO Label: St. Andrews
IMDG Packaging Group: III

MSDS Collection References: 73, 89, 103, 127, 132, 136, 142, 153, 159, 161-164

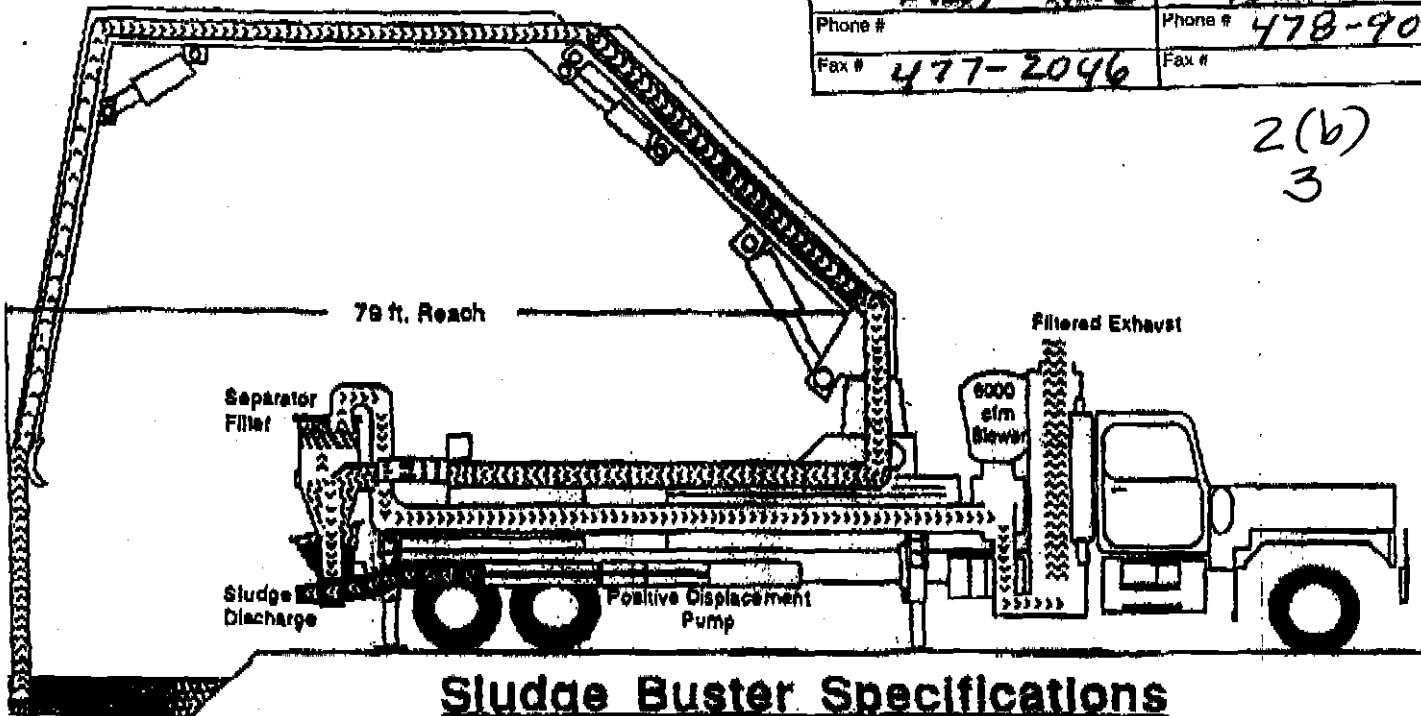
Prepared by: M Gannon, BA; Industrial Hygiene Review: DJ Wilson, CH; Medical Review: AC Darlington, MPH, MD; Edited by: JR Stuart, MS

165

Post-It® Fax Note

7671

Date	11/18	# of pages	3
To	KEITH H.	From	R. FARNETH
Co./Dept.	DROP FORGE	Co.	KELCHNER
Phone #		Phone #	478-9090
Fax #	477-2046	Fax #	

2(b)
3

Sludge Buster Specifications

Type: Air Conveyance Boom System

Boom System:

Pipeline Diameter: 8 inches
 Vertical Reach: 92 feet
 Horizontal Reach at turret: 79 feet
 Turret Access Range: 370 degrees
 Number of Sections: 3

Section 1: 29 feet
 Section 2: 28.5 feet
 Section 3: 29 feet

Controls: Operator can control boom
 & pump from up to 300 feet away.

Power System: 400 HP Mack Diesel

Vacuum System:

Type: Roots 1220 Blower
 Vacuum: 22 inches of Hg.
 Capacity: 6000 cubic feet per minute
 Vacuum Breaker: Set at 22 inches of Hg
 Suction Line: 8 inches

Pumping System:

Type: Positive Displacement
 Piston Size: 8 inches
 Output Capacity: 117 cubic yards/hour or
 393 gallons/minute
 Pump Pressure: 1536 psi(maximum)
 Pumping Distances: 15,000 feet*

Suction Attachments:

'Kings Crown'

Versatile head that provides ability to gouge away
 at harder, encrusted materials through boom action.

Water Blaster

High pressure water blasting(1-5,000psi) ring breaks
 the most difficult sludges to be pumped.

Air Pipe

Head attachment that enables air conveyance
 to work in subsurface applications.

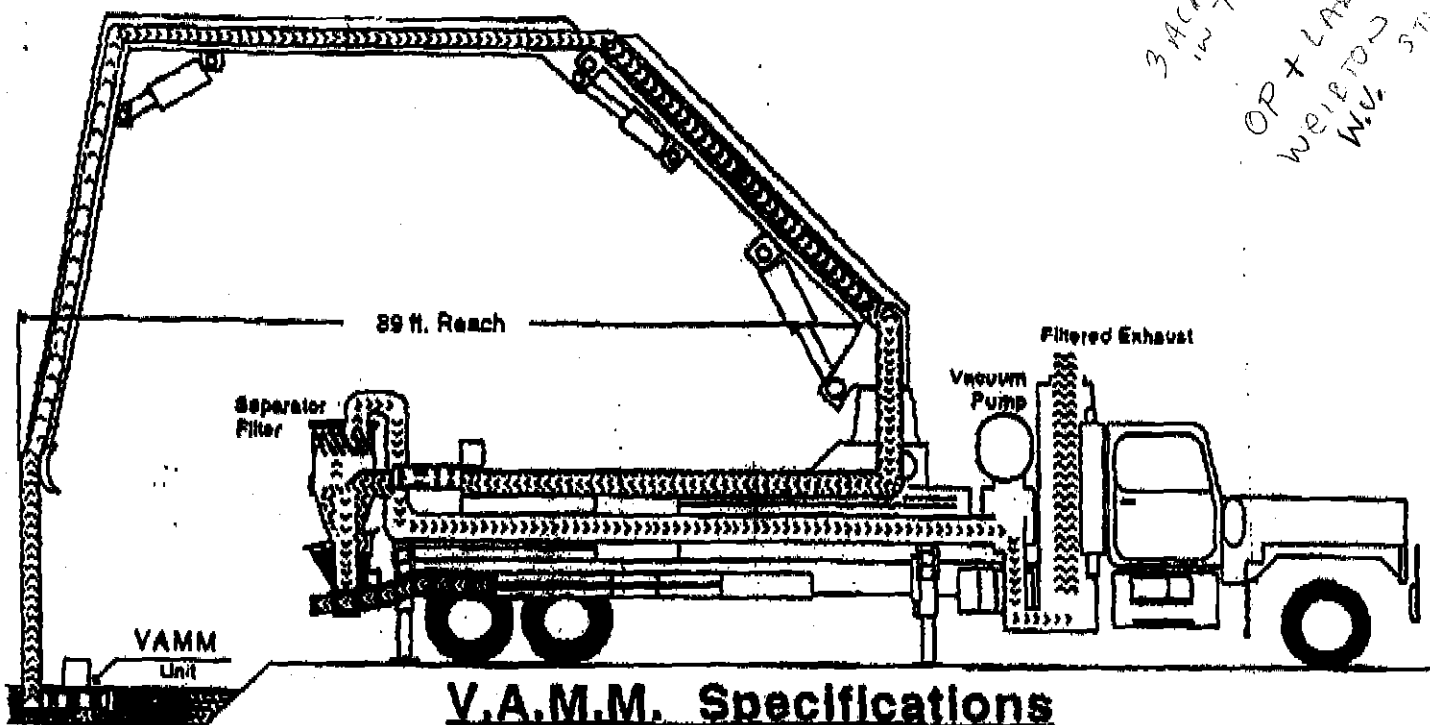
T-Pipe

Attachment that safely sweeps clean flexible
 membrane liners as well as existing liners.

* Distance & Quantity vary with material properties.

Safety:

- 3 Stage Boom give pinpoint control for operator.
- Remote Control Allows pump to be worked in 'Risk' environments.
- No Need for Labor or Operator to be exposed to contamination.
- Totally enclosed self sufficient system can work in remote areas.



V.A.M.M. Specifications

Type: Vacuum Assisted Boom System

Boom System:

Pipeline Diameter: 8 inches
Vertical Reach: 102 feet
Horizontal Reach at turret: 89 feet
Turret Access Range: 370 degrees
Number of Sections: 3

Section 1: 32 feet
2: 28 feet
3: 29 feet

Controls: Operator can control boom
& pump from up to 300 feet away.

Power System: 300 HP Cummins Diesel

Vacuum System:

Type: DeMag-286 Vacuum Pump
Vacuum: 28 inches of Hg.
Capacity: 1000 cubic feet per minute
Suction Line: 5 inches

Pumping System:

Type: Positive Displacement
Piston Size: 9 inches
Output Capacity: 130 cubic yards/hour or
437 gallons/minute
Pump Pressure: 1536 psi(maximum)
Pumping Distances: 15,000 feet*

V.A.M.M. System:

Power Unit: 150 H.P. Deutz Diesel; Material Pressure: 30 psi*
Material Volume: 130 cubic yards/hour or 437 gallons/minute*

Options:

The V.A.M.M. unit can be used with other Lefco equipment as a component system to meet the site specific or regulatory requirements.

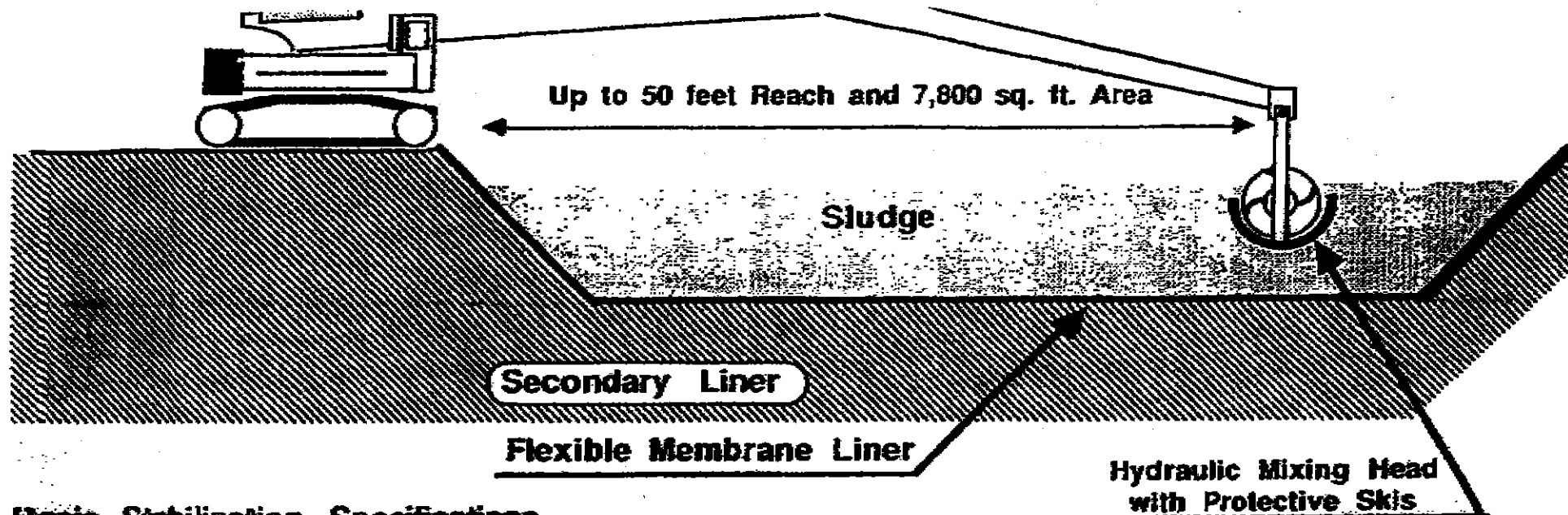
Biological Bug Agitator:

A unique recycling attachment provides optimal subsurface agitation of subsurface solids for oxidation entrainment and nutrient programs.

* Distance & Quantity vary with material properties.

Safety:

- 3 Stage Boom give pinpoint control for operator.
- Remote Control Allows pump to be worked in 'Risk' environments.
- No Need for Labor or Operator to be exposed to contamination.
- Totally enclosed self sufficient system can work in remote areas.
- V.A.M.M. system greatly reduces the fumes released to atmosphere.



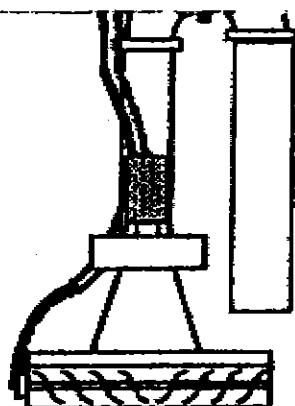
Basic Stabilization Specifications

Surface Reach: Up to a 7,800 square foot area can be reached with a single placement *.

Depth Access: Up to a 10 foot thickness depth of sludge can be stabilized.

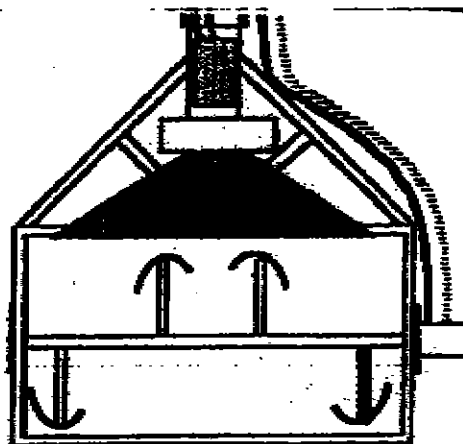
Mixing Rate: Up to 80 cubic yards of sludge per hour or 800 cubic yards per day.

* Sludge thickness dictates the working area of any particular job.



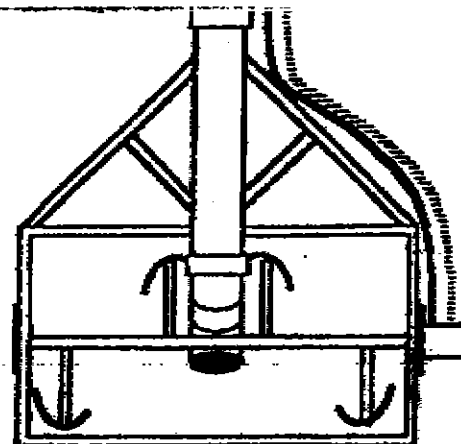
**Cutterhead
with Hydraulic
Horizontal Auger**

Discharge can be either
downcasted or extended



**Roto-Tiller with
Cutterhead/Destroyer**

Configured with



**Roto-Tiller
with Hydraulic driven Axis**

Configured with

INVOICE

2(6)
3

2/1 21,139.00

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HAMMONTREE & ASSOCIATES, LIMITED

Consulting Engineers - Planners - Surveyors

TREEMORE BUILDING
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Canton Drop Forge
 P.O. Box 6902
 4575 Southway Street, S.W.
 Canton, Ohio 44706
 Attn: Keith Houseknecht

Invoice No. 94-1267

Date November 1, 1994

DEC 01 1994
 JAN 01 1995

For professional services rendered for the month of October 1994. The services include preparation for sampling and testing of Lagoon #1.

Principal Engineer	10.0 hours @ \$82.00 per hour =	\$ 820.00
Engineer	18.5 hours @ 57.00 per hour =	1,054.50
Sampling Supplies		= 642.93
Total amount due		= \$2,517.33

* Engineer's Certification: I certify that this work was for the remediation of Lagoon #1 and 2 as recommended by the Phase II Audit under Project III, Task I "Removal and disposal of Oil Emulsions".

Lawrence D. Phillips
 Lawrence D. Phillips, P.E., P.S.

Summary:

PO #	092309
Authorized	12,980.00
Work completed-to-date	2,517.33
Previous billing	0.00
Now due	\$2,517.33

TERMS: Net 30 days. 1% service charge (APR of 12%) will be added each month
 Pay from this invoice - statements not issued.

CDF000779

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1 (c)(d)(e)
2 (b)
3

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Canton Drop Forge
 P.O. Box 6902
 4575 Southway Street S.W.
 Canton, Ohio 44706
 Attn: Keith Houseknecht

Invoice No. 94-1358

Date December 1, 1994

For professional services rendered for the month of November 1994. The services include preparation for sampling and testing of Lagoon #1.

Principal Engineer	18.0 hours @ \$82.00 per hour =	\$ 1,476.00
Engineer	26.0 hours @ 57.00 per hour =	1,482.00
Lab Analysis		= 3,688.31
3 Man Crew	32.0 hours @ 114.00 per hour =	3,648.00
	Total amount due =	\$10,294.31 <i>On</i>

* Engineer's Certification: I certify that this work was for the remediation of Lagoon #1 and 2 as recommended by the Phase II Audit under Project III, Task I "Removal and disposal of Oil Emulsions."

Summary:

PO# 092310	
Authorized	15,848.00
Work completed-to-date	12,811.64
Less previous billing	2,517.33
Now due	\$10,294.31

Lawrence D. Phillips
 Lawrence D. Phillips, P.E., P.S.

TERMS: Net 30 days. 1% service charge (APR of 12%) will be added each month
 Pay from this invoice - statements not issued.

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 P.O. Box 6902
 4575 Southway Street S.W.
 Canton, Ohio 44706
 Attn: Keith Houseknecht

Invoice No. 95-168

Date January 1, 1995

COPY

For professional services rendered for the month of December 1994. The Services include preparation for sampling and testing of Lagoon #1.

Principal Engineer	10.0 hours @ \$82.00 per hour = \$	820.00
Engineer	19.0 hours @ 57.00 per hour =	1,083.00
Supplies	=	43.98
Total amount due	=	\$1,946.98

* Engineer's Certification: I certify that this work was for the remediation of Lagoon #1 and 2 as recommended by the Phase II Audit under Project III, Task I "Removal and disposal of Oil Emulsions."

Summary:

PO# 092310	
Authorized	15,848.00
Work completed-to-date	14,758.62
Less previous billing	12,811.64
Now Due	<u>1,946.98</u>

Lawrence D. Phillips, P.E., P.S.

TERMS: Net 30 days. 1% service charge (APR of 12%) will be added each month
 Pay from this invoice - statements not issued.

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2(b)
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Canton Drop Forge
 P.O. Box 6902
 4575 Southway Street S.W.
 Canton, Ohio 44706
 Attn: Keith Houseknecht

Invoice No. 95-243

Date February 1, 1995

For professional services rendered for the month of January 1995. The services include preparation for sampling testing and report preparation of Lagoon #1.

Principal Engineer	4.0 hours @ \$84.00 per hour =	\$ 336.00
Engineer	10.0 hours @ 60.00 per hour =	600.00
Clerical	6.0 hours @ 21.00 per hour =	126.00
	Total amount due =	\$1,062.00

*Engineer's Certification: I certify that this work was for the design and construction of the Industrial Pretreatment program to replace Lagoon #1 and 2 as recommended by the Phase II Audit and to treat processed water upon the closures of Lagoons 1 and 2. The changes are necessary steps as prerequisites to the installation of a new water pretreatment system.

Summary:

PO# 092310

Authorized

Work completed-to-date

Less previous billing

Now due

15,848.00
 15,820.62
 14,758.62
 1,062.00

KJH 2/6/95
 OK

Lawrence D. Phillips
 Lawrence D. Phillips, P.E., P.S.

TERMS: Net 30 days. 1% service charge (APR of 12%) will be added each month
 Pay from this invoice - statements not issued.

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PAUL A. MILLER, P.S.

Canton Drop Forge
P.O. Box 6902
4575 Southway Street, S.W.
Canton, Ohio 44706
Attn: Keith Houseknecht

Invoice No. 94-1266

Date November 1, 1994

DEC 01 1994
JAN 01 1995

For professional services rendered for the month of October 1994. The services include preparation for sampling and testing of Lagoon #2.

Principal Engineer	10.0 hours @ \$82.00 per hour =	\$ 820.00
Engineer	4.5 hours @ 57.00 per hour =	256.50
	Total amount due =	\$1,076.50

* Engineer's Certification: I certify that this work was for the remediation of Lagoon #1 and 2 as recommended by the Phase II Audit under Project III, Task I "Removal and disposal of Oil Emulsions".

Lawrence D. Phillips
Lawrence D. Phillips, P.E., P.S.

Summary:

PO # 092309	
Authorized	15,848.00
Work completed-to-date	2,817.90
Previous billing	0.00
Now due	\$ 1,076.50

TERMS: Net 30 days. 1% service charge (APR of 12%) will be added each month
Pay from this invoice - statements not issued.

CDF000783

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2 (b)
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 DOMINIC A. MARTUCCIO, P.E., P.S.
 PAUL A. MILLER, P.S.

Canton Drop Forge
 P.O. Box 6902
 4575 Southway Street S.W.
 Canton, Ohio 44706
 Attn: Keith Houseknecht

Invoice No. 94-1359

Date December 1, 1994

For professional services rendered for the month of November 1994. The services include preparation for sampling and testing of Lagoon #2.

Principal Engineer	12.0 hours @ \$82.00 per hour =	\$ 984.00
Engineer	4.0 hours @ 57.00 per hour =	228.00
	Total amount due =	\$1,212.00 <i>on</i>

* Engineer's Certification: I certify that this work was for the remediation of Lagoon #1 and 2 as recommended by the Phase II Audit under Project III, Task I "Removal and disposal of Oil Emulsions."

Lawrence D. Phillips
 Lawrence D. Phillips, P.E., P.S.

Summary:

PO# 092309

Authorized	12,980.00
Work completed-to-date	2,288.50
Previous billing	1,076.50
Now due	<u>\$ 1,212.00</u>

TERMS: Net 30 days. 1% service charge (APR of 12%) will be added each month
 Pay from this invoice - statements not issued.

CDF000784

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 DOMINIC A. MARTUCCIO, P.E., P.S.
 PAUL A. MILLER, P.S.

Canton Drop Forge
 P.O. Box 6902
 4575 Southway Street S.W.
 Canton, Ohio 44706
 Attn: Keith Houseknecht

Invoice No. 95-167

Date January 1, 1995

For professional services rendered for the month of December 1994. The services include preparation for sampling and testing of Lagoon #2.

Principal Engineer	6.0 hours @ \$ 82.00 per hour =	\$ 492.00
Engineer	25.5 hours @ 57.00 per hour =	1,453.50
3 Man Survey Crew	8.0 hours @ 114.00 per hour =	912.00
Technician	4.5 hours @ 43.00 per hour =	193.50
Supplies		= 106.93
Total amount due		= \$3,157.93

*Engineer's Certification: I certify that this work was for the remediation of Lagoon #1 and 2 as recommended by the Phase II Audit under Project III, Task I "Removal and disposal of Oil Emulsions."

Summary:

PO# 0923089

Authorized \$12,930.00

Work completed-to-date 5,446.43

Previous billing 2,288.50

Now due \$ 3,157.93

Lawrence D. Phillips, P.E., P.S.

TERMS: Net 30 days. 1% service charge (APR of 12%) will be added each month
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MICHAEL L. DECKER, P.S.
 RICHARD J. FAULHABER, P.E., P.S.
 GREGORY E. MENCER, A.P.A.
 DANIEL J. GRINSTEAD, P.E.
 MARK E. FRANZEN, P.E.
 KARL J. OPRISCH, P.E.
 JEFFREY L. SPRAY, P.S.
 PAUL A. TOMIC, P.S.
 WILLIAM N. CLARK, P.E., P.S.
 THOMAS J. KING, P.S.
 DOMINIC A. MARTUCCIO, P.E., P.S.
 PAUL A. MILLER, P.S.

Canton Drop Forge
 P.O. Box 6902
 4575 Southway Street, S.W.
 Canton, Ohio 44706
 Attn: Keith Houseknecht

Invoice No. 95-242
 Date February 1, 1995

For professional services rendered for the month of January 1995. The services include preparation for sampling testing and report preparation of Lagoon #2.

Principal Engineer	16 hours @ \$84.00 per hour	= \$1,344.00
Engineer	15 hours @ 60.00 per hour	= 900.00
Lab Analysis		= 5,176.15
Supplies		= 35.66
Total amount due		= \$7,455.81

*Engineer's Certification: I certify that this work was for the design and construction of the Industrial Pretreatment program to replace Lagoon #1 and 2 as recommended by Phase II Audit and to treat processed water upon the closures of Lagoons 1 and 2. The changes are necessary steps as prerequisites to the installation of a new water pretreatment system.

Summary:

PO# 0923089 92309
 Authorized
 Work completed-to-date
 Previous billing
 Now due

\$12,980.00
 12,902.24
 5,446.43
 \$ 7,455.81

OK
 2/6/95

Lawrence D. Phillips
 Lawrence D. Phillips, P.E., P.S.

TERMS: Net 30 days. 1% service charge (APR of 12%) will be added each month
 Pay from this invoice - statements not issued.

CDF000786

2(b)
3



TELECOPIER COVER SHEET

CANTON DROP FORGE

PLEASE DELIVER THE FOLLOWING PAGES TO:

NAME: LARRY PHILLIPS
FIRM: HAMMONTREE
CITY: N. CANTON
PHONE: _____

FROM: NAME: KEITH HOUSSONNEZ

TOTAL NUMBER OF PAGES 1 INCLUDING COVER SHEET.

WE ARE TRANSMITTING ON THE FOLLOWING:

DATE: 2/15/85 TIME: 8:30

=====

LARRY
PLEASE HAVE KELCHNER
QUOTE ON BIO
RANDY FARNETH
478-9090

CDF000787

R. JAMES HAMMONTREE, P.E., P.S.
 BRUCE M. BAIR, P.E., P.S.
 LAWRENCE D. PHILLIPS, P.E., P.S.
 RONALD P. DOHY, P.S.
 GARY L. TOUSSANT, P.S.
 JOSE E. TOLEDO, P.E., P.S.
 RICHARD R. COOK, P.E., P.S.
 CHARLES F. HAMMONTREE, P.E., P.S.
 JAMES C. BOLLIBON, P.E., P.S.

HAMMONTREE & ASSOCIATES, LIMITED

Consulting Engineers - Planners - Surveyors

TREEMORE BUILDING
 5233 STONEHAM ROAD
 NORTH CANTON, OHIO 44720

PHONE (216) 499-8817
 FAX (216) 499-0149
 TOLL FREE 1-800-394-8817

February 22, 1995

MICHAEL L. DECKER, P.S.
 RICHARD J. FAULHABER, P.E., P.S.
 KEITH A. BENNETT, P.E.
 GREGORY E. MENCER, A.P.A.
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 MARK E. FRANZEN, P.E.
 KARL J. OPRISCH, P.E.
 BARBARA H. BENNETT, P.E.

*JEFF OK
 SHAW
 THIS KEITH*

RECEIVED

FEB 24 1995

CANTON DROP FORGE

Canton Drop Forge
 4575 Southway Street S.W.
 P.O. Box 6902
 Canton, Ohio 44706

Attention: **Keith Houseknecht**

Re: **Status of Sampling & Testing of Lagoons #1 & #2**

Dear Mr. Houseknecht:

This is a summary of purchase orders #092310 and #092309 for sampling and testing of Lagoon #1 and #2, respectively. It is anticipated that we will require an additional amount of fees to complete these two (2) work elements.

The costs involved more time than expected to properly set up each sampling point; different sampling techniques were required because of heavy gravel and cobble stone encountered during the sampling; clean up of equipment between samples and final clean up was difficult because normal degreasers and cleaning agents would not cut the oil; three (3) samples were delivered to potential remediation contractors and a landfill to obtain relative costs for clean-up; and additional samples were obtained at the request of Canton Drop Forge.

NOTE 1

	Purchase Order #092310	Purchase Order #092309
Amount Authorized	\$15,848.00	\$12,980.00
Amount Invoiced through January 31, 1995	15,820.62	12,902.24
Expected Fees to complete Sampling & Testing	1,264.00	1,104.00
Additional Fees Required	\$ 1,237.00	\$ 1,026.00

NOTE 2

RECEIVED

FEB 24 1995

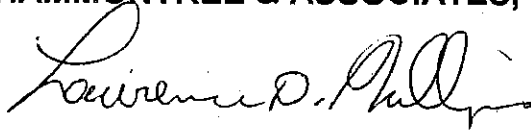
Mr. Keith Houseknecht
February 22, 1995
Page 2

CANTON DROP FORGE

Please process this request at your convenience. This additional time will also permit us to have several review meetings with you and your staff to discuss implementation. If you have any questions, please call at your convenience.

Very truly yours,

HAMMONTREE & ASSOCIATES, LIMITED



Lawrence D. Phillips, P.E., P.S.
Partner

LDP/jrc

NOTE 1 TOTAL COST FOR THIS REQUEST
WAS TO BE \$400.

NOTE 2 THIS IS AN 8 & 8 1/2 % OVER RUN

C
Verry

LARRY PHILLIPS, HAMMOND TREE
WILL HAVE SPECIFICATION READY
BY TUES. MARCH 14. HE IS TALKING
WITH A CONTRACTOR ON WED MARCH 8
WHICH WILL ALLOW HIM TO 1) WRITE
THE SPEC. & 2) QUOTE ON DESIGN
BUILD HIMSELF.

NORMALLY I WOULD NOT AGREE WITH
THE SAME PEOPLE WRITING THE
SPEC. & QUOTING. HE SAYS "NO GAMES"

K-777
3/7/95

2(6)
3

COPY DECKER 3/16

R. JAMES HAMMONTREE, P.E., P.S.
 BRUCE M. BAIR, P.E., P.S.
 LAWRENCE D. PHILLIPS, P.E., P.S.
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February 22, 1995

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JEFF OK
 SHAW
 THIS KEITH

RECEIVED

FEB 24 1995

Canton Drop Forge
 4575 Southway Street S.W.
 P.O. Box 6902
 Canton, Ohio 44706

CANTON DROP FORGE

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NOTE 2

w:jennifer\housekne

CDF000791

OK
 1/5/95
 3/15/95

RECEIVED

FEB 24 1995

Mr. Keith Houseknecht

February 22, 1995

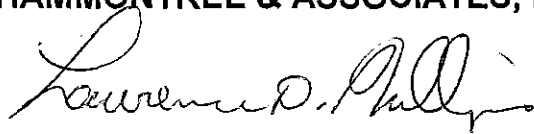
Page 2

CANTON DROP FORCE

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Very truly yours,

HAMMONTREE & ASSOCIATES, LIMITED



Lawrence D. Phillips, P.E., P.S.

Partner

LDP/jrc

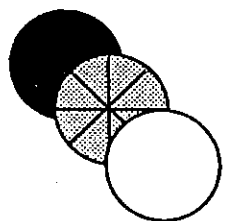
NOTE 1 TOTAL COST FOR THIS REQUEST
WAS TO BE \$400.

NOTE 2 THIS IS AN 8 + 8 1/2 % OVER RUN

PRODUCT DATA



JAMESTOWN CHEMICAL



POLYGUARD® PRODUCT PROFILE

High Efficiency Absorption Medium - Replaces Activated Carbon

Process Description

- Filtration
- Absorption
- Disposal

POLYGUARD® is a technological breakthrough in hydrocarbon absorption. This new absorption medium offers dramatic advantages and cost savings compared to traditional granular activated carbon filtration methods.

PolyGuard® is a non-toxic, environmentally friendly absorption medium designed as a direct replacement for activated carbon in water and vapor phase applications. Unlike activated carbon, which adsorbs hydrocarbon contaminants on

its surface, PolyGuard® absorbs (bonds) contaminants into an elastomeric matrix that will not leach after it is removed from the filter, and meets TCLP standards for waste disposal.

In liquid phase applications, PolyGuard® outperforms activated carbon, removing as much as 20 times the level of hydrocarbon contamination (by weight). It dramatically cuts the cost of filtration media, as well as significantly reducing the labor and costs associated with

changing and disposing of spent media. With a properly designed system, PolyGuard® can efficiently remove VOC contaminants in water to non-detectable levels.

PolyGuard® increases the flash point of fuels and other volatile hydrocarbons, so that spent media should not require special handling. Spent media is approved for incineration at waste-to-energy co-generation plants (except where specifically prohibited) at bulk pricing.

Process Application

- Hydrocarbons
- Halocarbons
- Groundwater
- Wastewater
- Process water
- Remediation
- Refineries
- Storage facilities
- Metal coating
- U.S.T.
- Municipal water
- Other industrial applications

The most significant feature of PolyGuard® is that it dramatically outperforms granular activated carbon. One pound of PolyGuard® will remove 2 pounds of hydrocarbons, compared to only 0.1 pound for one pound of carbon (assuming an efficiency of 10% in liquid phase applications), a ratio of 20:1. PolyGuard® is

less dense than carbon at approximately 14 lbs/cu. ft. This compares to a median density of 30 lbs/cu. ft for carbon, according to type and mesh size.

Importantly, PolyGuard® offers very significant cost savings compared to carbon – on average, it is up to three times less expensive than gran-

ular activated carbon to use, depending on the loading characteristics of the carbon.

In addition to these savings, there is as much as a tenfold savings in labor and disposal costs, resulting from a major reduction in the frequency of media replacement and disposal and reduction in bed size.

TABLE 1: REPRESENTATIVE CHEMICALS REMOVED

Benzene	Napthalene	Tetrachloroethylene
DBOP	Toluene	Toxaphene
DDT	Trichloroethane	Trichloroethylene
Dichloroethane	PCBs	Xylene
Dichloropropane	Phenol compounds	Gasoline
Diesel Fuel	Phthalates	Oil/Grease

R. JAMES HAMMONTREE, P.E., P.S.
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CHARLES F. HAMMONTREE, P.E., P.S.
JAMES C. BOLLIBON, P.E., P.S.

2 (b)
3

5

HAMMONTREE & ASSOCIATES, LIMITED

Consulting Engineers - Planners - Surveyors

TREMORE BUILDING
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NORTH CANTON, OHIO 44720

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MARK E. FRANZEN, P.E.
KARL J. OPRISCH, P.E.
BARBARA H. BENNETT, P.E.

RECEIVED

February 7, 1995

FEB 8 1995

CANTON DROP FORGE

Canton Drop Forge
4575 Southway Street
P.O. Box 6902
Canton, Ohio 44706-0902

Attention: Keith Houseknecht

Dear Mr. Houseknecht:

Hammontree & Associates, Limited has reviewed the Oil/Water Separation Design Report (October 1994) which was submitted to Canton Drop Forge by FBA Environmental. The general design and layout of the proposed system appears to be sound and workable yet there are a few items which should be clarified or addressed.

The following is a list of comments which Hammontree & Associates has developed during the review process:

1. Canton Drop Forge may wish to maintain the ability to discharge the "yard" O/W separator back into Pond one (1). Small piping changes would make this option possible.
2. There is no apparent reason to double pump from Pond one (1) to Pond two (2). The sump pump in the press room can easily be by-passed. We understand this sump may already be by passed. There should be a separate force main from the separator at the south end of the Forge Shop to the storm sewers draining into Lagoon #2. Have you considered discharging by gravity into Lagoon #1? We expect Lagoon #1 to continue to receive storm water discharges.
3. Should the drain in the oil house be connected to the 6" PVC pipe which ties into the "yard" O/W separator?

RECEIVED

FEB 8 1995

FORGE SHOP

Mr. Keith Houseknecht
February 7, 1995
Page 2

4. Has testing been done to verify the suitability of the proposed units to treat the effluent? Either perform pilot testing or treatability studies for properties of the effluent to determine O/W separator applicability. There was no manufacturer's data supplied. Chemical and physical properties of the effluent may effect separator efficiency.
5. What are the O&M costs associated with the proposed units? Expected useful life?
6. Can the units be modified for other effluents?
7. The Oil/Water separator north of the saw department is in front of a door to building "C". Is there sufficient room for installation?
8. The report should correct pond identification numbers.
9. Is 120 gpm sufficient to handle peak flows from the Forge Shop building "C"? Sizing was not discussed for the north end of the Forge Shop.
10. Will there be separate slop oil storage tanks? What sizes are expected?
11. Does the sump in the basement of the boiler house receive any oil?
12. The oils condensate drain from the hot process softener should be treated prior to discharge to Pond #2 (Plate #1) (Okay on Plate #4).
13. The steam separator at the north end of the Forge Shop should be attached either to the building or stand alone. The stand by "Anvil" will be removed to another location.
14. Do the three lines to Pond one (1) on Plate four (4) represent the "Die Lube", "Steam Line" and "Surface Drainage" discharging to the south and west of the Forge Shop?

Respectfully,

HAMMONTREE & ASSOCIATES, LIMITED



Gene G. Hill, E.I.T., M.S.

HAMMONTREE & ASSOCIATES, LIMITED

Engineers • Planners • Surveyors
5233 STONEHAM ROAD
NORTH CANTON, OHIO 44720

Canton 216/499-8817
FAX 216/499-0149

Akron 216/633-7274
Marietta 614/373-7398

^{2(b)}
₃
LETTER OF TRANSMITTAL

DATE

2-1-95

ATTENTION

KEITH HOUSEKNECHT

RE

LAGOON #1 RECOMMENDATIONS

RECEIVED

FEB 3 1995

TO CANTON DROP FORGE
4575 SOUTHWAY STREET
P.O. BOX 6902
CANTON, OHIO 44706

WE ARE SENDING ☐ **ATTACHED** ☐ **UNDER SEPARATE COVER VIA**

- ☐ SAMPLES
- ☐ LITERATURE
- ☐ PLANS
- ☐ PRINTS

- ☐ SHOP DRAWINGS
- ☐ ENGINEERING DRAWINGS
- ☐ CHANGE ORDERS
- ☐ LETTERS

- ☐ CONTRACTS
- ☐ OTHER

CANTON DROP FORGE

COPIES	DATE	NO	DESCRIPTION
2	2-1-95		LAGOON #1 SLUDGE DISPOSAL/TREATMENT OPTIONS

THESE ARE BEING SENT:

- ☐ FOR YOUR APPROVAL
- ☐ FOR YOUR USE
- ☒ FOR YOUR REVIEW
- ☐ FOR YOUR COMMENTS
- ☐ FOR YOUR SIGNATURE
- ☐ FOR YOUR _____

- ☐ APPROVED AS NOTED
- ☐ APPROVED AS SUBMITTED
- ☐ APPROVED AS CHANGED
- ☐ REJECTED AS NOTED
- ☐ REJECTED AS CHANGED
- ☐ RETURNED FOR CORRECTIONS

- ☐ RESUBMIT _____ COPIES FOR APPROVAL
- ☐ SUBMIT _____ COPIES FOR DISTRIBUTION
- ☐ RENEW _____ COPIES FOR

NOTES IF A MEETING BETWEEN THE LANDFILL REPS. OR
THE BIOREMEDIATION REPS. AND CDF AND H&A IS
REQUIRED TO MAKE A FINAL DECISION,
WE CAN ARRANGE A MEETING AT YOUR CONVENIENCE.

COPY TO

CDF000796

SIGNATURE

Gene J. Hill

TITLE

Envir. Eng. EIT, MS

DATE

2-1-95

2 (b)
3



**FLOYD
BROWNE
ASSOCIATES,
INC.**

181 S. MAIN ST., P.O. BOX 587, MARION, OHIO 43301-0587
(614) 383-2187 FAX (614) 382-1420

GEO 194-94
Canton Drop Forge

August 10, 1994

Mr. Keith Houseknecht
Canton Drop Forge
4575 Southway Street S.W., P.O. Box 6902
Canton, Ohio 44706

Dear Mr. Houseknecht:

Subject: Lagoon #1 Sampling and Characterization

Per our site meeting on July 20, 1994, FBA Environmental Inc. is pleased to provide Canton Drop Forge with a proposal to complete the sampling and to determine the physical characteristics of Lagoon #1.

PROPOSED SCOPE

The services to be proposed are based on assumptions concerning the site characteristics and working conditions at the Canton Drop Forge facility. In the likelihood that uncontrollable situations arise, i.e. poor weather conditions, restricted mobilization within the Canton Drop Forge facility, difficult accessibility surrounding the Lagoon #1 or any other potentially hazardous conditions while performing this type of specialized service, FBA Environmental will promptly notify Canton Drop Forge of these occurrences and their effect on the proposed scope of work and cost estimate.

Task 1-Equipment Mobilization

To successfully complete the characterization of Lagoon #1, FBA Environmental will mobilize a pontoon boat, 24 sections of 3-inch aluminum pipe (30 foot lengths), a vibracoring device and all other necessary support equipment to the Canton Drop Forge facility. To prevent damage to our equipment and or alteration of the Lagoon, a truck mounted crane will be mobilized to the site to initially position the pontoon boat in the Lagoon. At the completion of all field activities, a truck mounted crane will remove the pontoon boat from the lagoon. FBA Environmental anticipates the need for a four (4) man field crew. The field crew will consist of experienced personnel who have performed this type of service at other facilities around the country. Each crew member has been certified to work in potentially hazardous conditions and

Mr. Keith Houseknecht
Canton Drop Forge
August 11, 1994
Page 2

are properly trained with their 40-hour OSHA certification. FBA Environmental anticipates the following people will be dedicated to this project throughout the duration:

Mr. Gregory McComas--Project Hydrogeologist
Mr. Mike Burge--Senior GeoTechnician
Mr. Gerald Nauer--GeoTechnician
Mr. Matt Kaluza--GeoTechnician

Task 2-Site Preparation

Upon arrival at the Canton Drop Forge facility, FBA Environmental will need a "clean area" to serve as a decontamination pad. The decontamination pad will be used for cleaning road grime and or machine oils from the aluminum vibracoring pipe. Each section of aluminum pipe will be steam cleaned with a portable steam cleaning unit. In addition, a sample retrieval and extraction area will be established near the lagoon which will also be utilized as a storage area for ancillary supplies and equipment.

Prior to sediment sample collection, a site meeting between Canton Drop Forge and FBA Environmental will take place in order to coordinate the logistics and method for maintaining accurate grid transects while performing vibracore sampling. Upon mutual consent on the grid spacing and number of sample cores, FBA Environmental will establish a transect to be followed during sample progression across Lagoon #1. For the purposes of this proposal, a 4 x 6 transect with 25 foot spacings has been chosen for the Lagoon. This arrangement yields approximately 24 sediment cores. If Canton Drop Forge prefers a 3 x 6 grid with 30 foot spacings, 18 sediment cores would be collected. Sampling and laboratory costs are directionally proportional to the number of sediment cores collected. At each sampling point, a horizontal and vertical datum will be established to assist in the bottom profile of the lagoon.

Due to the nature of this type of field work, solid waste materials will be generated, i.e. excess sediment, waste plastic, personal protective gear, spent/cut aluminum tubes and decontamination water. To date, it is assumed that this waste material will be managed by Canton Drop Forge for proper disposal based on hazardous characterization tests to determine the nature of the sediment material.

Task 3-Sediment Sample Acquisition

After all quality control measures and health and safety provisions have been prepared, field crew members will initiate sampling and physical description of the sediments recovered from each sampling tube. Methods employed during sample collection will adhere to the protocols outlined in the attached Sampling Plan (*Attachment A*). Sediment samples will be sent to Zande Environmental Service, Inc. in Columbus, Ohio for chemical analysis. The attached Table No.

CDF000798

Mr. Keith Houseknecht
Canton Drop Forge
August 11, 1994
Page 3

2 outlines the chemical constituents and frequency of sediment samples to be collected for laboratory analysis. FBA Environmental suggests that material safety data sheets (MSDS) or other historical information concerning the oils in question be provided at our logistics meeting prior to starting field work activities. With this information, FBA Environmental should be able to reduce the chemical constituents to a more reasonable list, thus saving Canton Drop Forge the added expense of unnecessary sampling and analysis.

Because the materials from this lagoon are of an unknown origin, FBA Environmental will perform this work in a modified Level C personal protection. Because of the type of work involved and potential risks, field personnel will comply with FBA Environmental's Health and Safety Plan (HASP). An example HASP is provided in *Attachment B* as a means of illustrating the basic outline and subjects discussed. When awarded this project, FBA Environmental will finalize the HASP and submit a copy to Canton Drop Forge for their review.

Task 4-Lagoon #1 Characterization Report

Upon completion of vibracoring sample collection, FBA Environmental will compile cross sections, stratigraphic descriptions of sediment encountered, subsurface topographic maps will be generated and volumetric capacities of sediment within the Lagoon #1 will be estimated. Upon receipt of the analytical data, FBA Environmental will correlate stratigraphy and chemical concentration values within an aerial extent. In addition, isopleth maps will be generated from analytical data points to determine chemical constituent distributions both horizontally and vertically within the sediment. All information will be compiled and bound in a report format for internal use by Canton Drop Forge. A preliminary draft report can be submitted to you prior to final report completion if you so choose.

PROJECT QUOTATION

FBA Environmental's fee for the services described above will be invoiced on a time-and-expense basis with personnel assigned to the project billed at our current hourly rates, plus expenses including vehicle travel and standard reimbursable rates. The costs to perform this work are outlined in the attached Table No. 1 for your review. FBA Environmental estimates the cost to be Forty Two Thousand Fifty Six Dollars (\$42,056.00). This offer remains valid for 30 days; acceptance thereafter is subject to our approval.

INVOICING PROCEDURES

Invoices will be submitted monthly based on the amount of work actually performed. If the CLIENT fails to make any payment due FBA Environmental within thirty (30) days after receipt of FBA Environmental's invoice, the amounts due FBA Environmental may include a charge at the rate of 1-1/2% per month from said thirtieth day. In addition, FBA Environmental may

CDF000799

Mr. Keith Houseknecht
Canton Drop Forge
August 10, 1994
Page 4

suspend services under this Agreement until all outstanding invoices have been paid in full plus accrued interest.

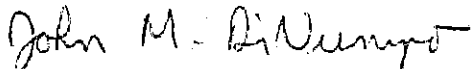
PROJECT INITIATION PROCEDURES

If this proposal is satisfactory, you may authorize FBA Environmental to proceed at once by signing three copies of this letter and returning two copies to FBA Environmental. If there is a need for clarification or if changes in contractual arrangements are desired, please contact John DiNunzio or Greg McComas.

FBA Environmental looks forward to working with you and providing professional services to Canton Drop Forge. If any of FBA Environmental's costs do not adequately encompass the scope of this project or seem improper, please call so we can discuss the anticipated work and cost of services proposed.

Sincerely,

FBA Environmental, Inc.



John M. DiNunzio, CPG
Vice President

*attachments: Attachment A, Sampling Plan
Attachment B, Health and Safety Plan*

ACCEPTED: Canton Drop Forge

By: _____

Title: _____

Date: _____

CDF000800

TABLE NO.1

Task 1-Equipment Mobilization

a) Pontoon boat, equipment and crew	\$1,000.00
b) Truck mounted crane (placement and removal)	\$1,000.00

Task 2-Site Preparation, Decontamination and Cleanup

Construct decontamination pad and sample retrievable tables, load equipment, prepare pontoon boat and vibracoring system, decon-equipment at the end of the job.	\$4,750.00
--	------------

Task 3-Sediment Sample Acquisition

a) On-site sampling - assumes 5 field days with 4 man crew	\$11,880.00
b) Per diem/expenses - assumes 7 days, 6 nights with 4 man crew	\$1,700.00

Task 4-Lagoon #1 Characterization Report

Project management, data compilation, interpretation and report preparation	\$7,110.00
---	------------

Laboratory Costs

Assumes one sample per sediment core and no PCB confirmation samples	\$8,407.00
--	------------

Additional Costs

Equipment rental (pontoon boat, jon boat, OVA, steam cleaner, generator, decon equipment, vibracore) \$672/day Assume 5 days of rental	\$3,460.00
--	------------

Expendables	\$2,749.00
-------------	------------

TOTAL PROJECT COST	\$42,056.00
---------------------------	--------------------

Note:

Costs for surveying are assumed to be contracted directly through Canton Drop Forge. Surveying costs are not included in this estimate.

CDF000801

Table No. 2
Canton Drop Forge (Lagoon Characterization)
Analytical Sampling Program
(Assumes 24 sediment cores)

<u>CHEMICAL CONSTITUENT</u>	<u>FREQUENCY OF SAMPLES</u>
TPH (Method 8015)	minimum of 24
PCB (field screening kits)	minimum of 24
PCB (Method 8080)	only positive detections with field kits
VOCs (Method 8240)	24 (from highest OVA reading in field)
SVOCs (Method 8270)	20% of total samples collected (min. 5)
Metals*	20% of total samples collected (min. 5)
TCLP**	one
Flash point	minimum of 2 on selected samples

Notes:

** Metals include arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver.*

***TCLP includes metals and volatile organics.*

ATTACHMENT A

FIELD SAMPLING PLAN

1.0 Introduction

The following plan describes the objectives and methods used to sample the sediment within Lagoon #1 at the Canton Drop Forge facility in Canton, Ohio, as illustrated in Plate No. 1

1.1 Sampling Objective

The objective of the sampling program is to provide physical measurements and descriptions of sediment at the bottom of the lagoon. If stratification exists, an attempt will be made to map the top of each sediment type, to determine the volume of each sediment type, and analyze the chemical nature of each stratigraphic zone through laboratory procedures.

1.2 Core Sample Location

One sediment core will be collected at the grid intersect as illustrated on the Canton Drop Forge Plate No. 2. Sediment core locations may be altered to fully delineate the areas immediately adjacent to the lagoon inlet locations. To adequately locate each sample core collected, FBA Environmental proposes to survey each sample location in order to maintain datum control. If Canton Drop Forge prefers to use a local surveyor, FBA Environmental will coordinate with that individual the grid setup and scope of the vibracoring project.

1.3 Core Sample Frequency

One sediment core will be collected at each grid intersect as illustrated on Plate No. 2. Based on the proposed grid pattern as defined by FBA Environmental, 24 sediment cores will be collected from Lagoon #1. The grid is based on a 4 x 6 transect with cores collected every 25 feet along the transects. Each core location (24) should adequately define the characteristics of the lagoon.

All sediment cores collected will be described by the project geologist. To maintain consistent descriptions and nomenclature, the same project geologist will log each core collected from the grid. To characterize the chemical composition of sediment within Lagoon #1, a minimum of one sample for laboratory analysis will be collected from each sediment core. The number of samples per sediment core or per sediment horizon has not been defined at this time by either Canton Drop Forge or FBA Environmental. As a general rule, an analytical sample should be collected from at least every 5 feet of sediment recovery. However, based on our first transect run and after general sampling conditions have been evaluated, a group decision will be made as to what criteria defines a stratigraphic zone within the sediment, and at what locations do we focus our sampling effort, i.e. inlet locations.

1.4 Sample Matrices

Samples of the Lagoon #1 sediment will be collected from each grid location. The vibracore will be advanced to refusal or natural sediment at each sampling point. If natural materials are encountered and are able to be penetrated with the vibracore, FBA Environmental proposes to collect selected natural sediments in order to delineate the transition zone between the lagoon bottom and "non-impacted" natural materials.

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Sample matrices are expected to be either sludge, oil saturated bottom sediments, construction fill materials and possibly sand, silt, and clay from the naturally occurring unconsolidated materials beneath the lagoon sediment.

1.5 Sample Designation

All samples will be designated with a unique sample number. The sample designation code will be as follows:

LG-SDG##-C##-##

where;

LG = Lagoon #1

SD = Sediment matrix

G## = Grid Location

C## = Core number

= Sample number

In addition, consecutive numbers (starting with 1) will be assigned to each sample to track the number of samples associated with the project.

1.6 Sediment Core Sampling Equipment

To collect cores of the bottom sediment from the Lagoon #1, a vibracore system will be employed. The system consists of a vibracore unit, tripod, tripod extension bar, core mounting heads, core removal clamps, and chain hoist. The equipment will be placed on a floating platform which will be used to float the equipment into position above the sample location point.

1.7 Sediment Core Collection Procedure

The floating platform containing the vibracore sampling equipment and accessories will be maneuvered to a transect grid intersection as defined by the proposed survey. The hatch located at the front of the platform will be opened and a three inch I.D. aluminum tube with a maximum length of 30-feet will be inserted into the water to the bottom of Lagoon #1. The vibracore head will be attached to the tube at a height of approximately 6.5 feet above the deck of the platform.

The vibracore unit will be started and idled until an all clear sign is given. The vibracore unit will be throttled-up and the aluminum-tube will be advanced until the deck of the platform interferes with the head assembly. The vibracore unit will be placed back into an idle position while the head assembly is loosened and re-attached at a height approximately 6.5 feet above the deck. The process continues until refusal is encountered or until the depth of penetration exceeds the length of the tube. Upon encountering refusal, the tube will be cut off to a convenient height above the deck, core removal clamps will be attached to the tube, and a slide hammer assembly will be placed over the tube and rest upon the clamp. The tube will then be forced down with the slide hammer until no further penetration is reached. The attachments are removed and the tube will be

cut off again at a height just above deck level or just below deck level. If a set of tubes are to be advanced before any extraction, then the tube is cut off below the deck. If the tube is to be removed immediately, then the tube is cut off above the deck.

At this point the depth to sediment will be measured both inside and outside the tube with a weighted measuring tape and the information will be recorded. The measurements are required to provide the depth to bottom elevation and to determine the percent recovery of the sediment core. The top of the tube will then be sealed using a plastic shelly tube cap with duct tape to maximize core recovery by creating a vacuum within the tube when it is being removed.

The sealed tube will then be surveyed for elevation of the top of the tube and for location within the grid system.

Following this procedure, the sealed tube will then be removed. A tripod will be positioned over the tube, a core removal clamp attached to the tube, and a chain hoist secured around the removal clamp. The tube will be pulled out of the sediment by using the hoist and lowering the clamp as needed.

Once the bottom of the tube is free from the sediment, the tube is manually tipped and pulled onto the platform as quickly as possible to maximize core recovery. The bottom end of the tube is capped and taped like the top.

The capped tube will be labeled with Grid Square Location Number, the sediment core number, and a directional arrow for the top portion of the sample. The overall length of the tube will be measured and recorded along with time of sediment core recovery. Depending upon the depth of water at the core location, the top of the tube may be shortened to remove excess water in order to minimize mixing during transportation. If the top is shortened, the tube will be sealed again with the same procedure as described above. Completed core tubes will be positioned and transported with the top end elevated to maintain the relative position of the sediment recovered.

In the likelihood that floating oil is present at the surface of the lagoon, it may be necessary to place a retrievable cork or knock out plug into the bottom of the tube prior to insertion into the lagoon. The cork will prevent oil from entering the tube at the surface of the lagoon. Once the tube is safely below the floating product layer, the cork will be "knocked out" and the tube will be ready for sediment sampling. This method should adequately assist in the determination of representative samples from the lagoon bottom.

1.8 Sediment Core Description and Sampling for Analysis

All sediment cores will be transported to a central staging area to be opened, sampled, and described. The staging area will consist of a containment area, a wooden trough used for cutting open the tubes, a sample-description table, and drums for the disposal of solids, liquids and personal protective equipment generated during sediment core description and sampling.

The containment area will consist of a wooden frame lined with six-mil plastic. Walkways made of wooden pallets will cross the area to preserve the integrity of the plastic liner. Tube cutting, core description, sampling, and decontamination of sampling equipment will take place within this area.

The wooden cutting trough will be lined with plastic before placing a tube within it. The trough will be sized to prevent movement of the tube during cutting. Each tube will be cut lengthwise, rotated approximately 120 degrees and cut lengthwise again. The aluminum tubes will be cut with a power saw. The blade will be set to a depth that barely cuts through the aluminum tube and causes minimal disturbance to the sediment. The tube will then be lifted out (2 or 3 people depending on length of sediment core recovery) and placed upon a plastic-lined description table.

Once the core tube is opened, it will be readied for the project geologist. The project geologist will measure core recovery, monitor organic vapor per every one foot of sediment recovery by using an organic vapor analyzer (OVA), describe the sediment core according to grain-size, lamination, structure, and general lithology. The sediment will be defined and classified according to the ASTM D 2488 method for the visual identification of soils and color will be assigned using the Munsell color chart. In addition, the sample cores will be checked for the presence of oils, construction debris and other unnatural materials.

Where volatile organic compound (VOC) analysis is required, a VOC sample will be collected from the zone which registered the highest organic vapor reading. VOC sample collection will precede core description in order to prevent any volatilization of gasses from the sampling process. Total petroleum hydrocarbon (TPH) samples will be collected from each distinctly separate stratigraphic zone from each sediment core. In addition, PCBs will be pre-screened by using field kits.

Sediment remaining after sediment core description and sampling will be placed in 5-gallon buckets and labeled with site ID, date and time. The method of storage has not yet been defined by Canton Drop Forge. If archive samples are needed, then the remaining sediment from each individual core should be contained separately from other cores in 5-gallon plastic buckets (this would also hold true if separate horizons were identified and sampled individually). If there is no long term need for additional sediment from Lagoon #1, then the remaining sediment could be placed in 55-gallon open top drums and stored until an appropriate disposal method has been chosen.

Used aluminum tubes will be power washed at the decontamination pad, cut into five to eight foot lengths and staged in an area designated by Canton Drop Forge for ultimate disposal.

1.9 Sample Analysis

Based on a site meeting between Mr. John DiNunzio of FBA Environmental and Mr. Keith Houseknecht of Canton Drop Forge on July 20, 1994, chemical analysis will be subcontracted to an OEPA certified laboratory by FBA Environmental. FBA Environmental proposes to use Zande Environmental Service, Inc. of Columbus, Ohio.

The following constituents will be sent to Zande for chemical analysis: metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver); semi-volatile organic compounds (SVOCs) using Method 8270. SVOC and metals analysis will be performed at a frequency of 20% of the total analytical samples collected. A minimum of one TPH sample will be collected from each sediment core. The TPH samples will be analyzed using Method 8015 in order to eliminate erroneous impacts from methagenic carbon compounds when Method 418.1 is used. A VOC sample will be collected from the zone which registered the highest organic vapor reading in each sediment core collected. VOC analysis will be completed by using Method 8240. In addition, polychlorinated biphenyl (PCBs) will be pre-screened in the field using Dextsil's PCB Screening Kit. Positive detection of PCBs with the pre-screening kits will be confirmed by the laboratory using Method 8080. TCLP and flash point samples should also be analyzed to determine the hazardous nature of the materials collected from Lagoon #1. These samples can be collected from either the 5-gallon buckets or 55-gallon drums which will contain excess sediment materials. The proposed analytical sampling program will supply necessary information as to the chemical nature of the sediments and supply potential BTU content information if remedial design and ultimate disposal is thought to include incineration. In addition, this arrangement reduces the analytical costs incurred by Canton Drop Forge while still providing defensible data for future closure activities. However, if Lagoon Closure is an imminent activity, State or Federal Agencies may need to be aware of this sampling plan prior to Lagoon Characterization. Please refer to Table 2 which outlines the proposed sampling arrangement for this project.

1.10 Sample QA/QC

Prior to field sampling activities, a coordination meeting between Canton Drop Forge and FBA Environmental will clarify the scope of services, grid size and level of quality assurance during the investigation. However, in the interim FBA Environmental proposes the following:

That field replicate sample be collected on a frequency of 10% of total samples collected. Field replicates verify laboratory precision and are usually required when dealing with State or Federal Agencies.

Where VOCs are proposed as an analytical parameter, trip blanks should be included in the sample shuttles to check for outside contaminants which render samples invalid due to VOC contamination during sample shuttle transport or storage. To save money on laboratory expenses, trip blanks will only be sampled if there are VOC detections in the sediment samples sent in with the sample shuttles.

1.11 Sample Transfer and Chain-of-Custody

The analytical laboratory will provide all sample containers for the collection of sediment samples. The appropriate preservatives associated with the required analysis will be included with the sample jars.

FBA Environmental will use strict Chain-of-Custody procedures to track the sample from the time of collection to the time of delivery to the laboratory.

1.11 Decontamination

All sample cores will be steam cleaned prior to use in Lagoon #1. The aluminum tubes may contain cutting oils from the manufacturer which may invalidate the analytical results obtained by the laboratory. Spent tubes will also be steam cleaned to remove all oils and residual sediments from the tubes.

The equipment used to collect samples from the sediment cores will be decontaminated. The equipment will be cleaned in an Alconox or Liquinox detergent, double rinsed in potable water and receive a final rinse of deionized water.

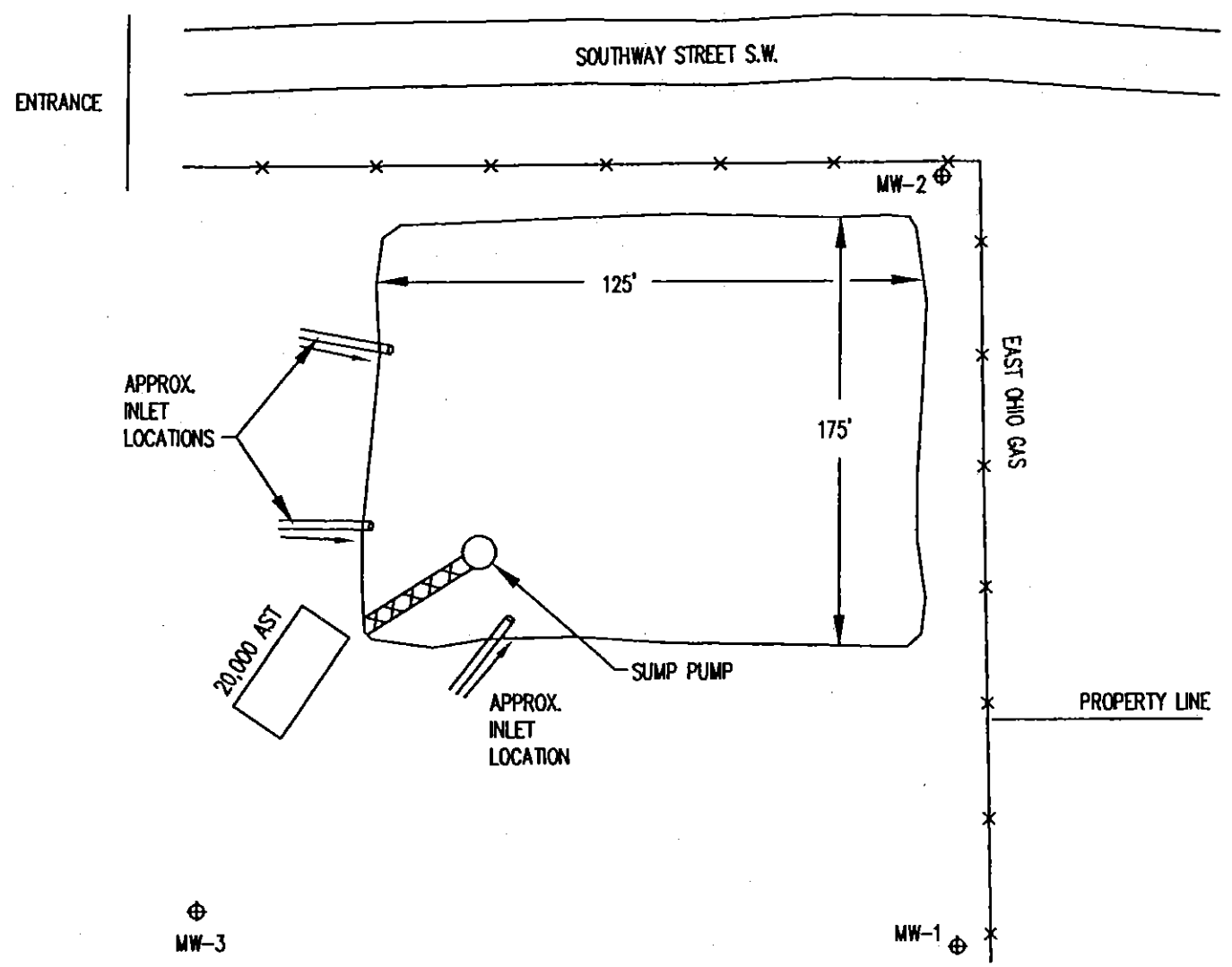
The sampling equipment will be decontaminated between each sediment core collection. All decontamination water will be contained within 55-gallon drums and staged at the sample description area for ultimate disposal. A grab sample will be collected from the decontamination water to test for the same constituents as the sediment with the exception of TCLP and flash point.

NOTE: During this project, no water samples will be collected from the lagoon or ground water beneath the lagoon. However, based on the findings of our initial laboratory results, a decision may be made to increase the amount of QA/QC related sampling to verify field procedures as well as laboratory methodologies. If Canton Drop Forge intends to submit the final Lagoon Characterization Report to a enforcement Agency in the future, it may be prudent to develop a Quality Assurance Plan to verify test methods and field procedures. In addition, if materials are found to be of a hazardous nature, increased sampling of waste materials may be necessary for proper disposal.

**CANTON DROP FORGE
PROPOSED VIBRACORING LOCATIONS
AT SLUDGE LAGOON #1**
FBA ENVIRONMENTAL, INC.
COLUMBUS, OHIO
PLATE 1

LEGEND

⊕ MONITORING WELL
NOT TO SCALE



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CANTON DROP FORGE
LAGOON
GRID SET-UP
FBA ENVIRONMENTAL, INC.
COLUMBUS, OHIO
PLATE 2

4' X 6' GRID

24 SEDIMENT CORE LOCATIONS

NOTE: GRID MAY BE MODIFIED BY LOCATING SEDIMENT
CORES NEAR INLETS TO LAGOON.

LEGEND

⊕ MONITORING WELL

NOT TO SCALE

APPROX.
INLET
LOCATIONS

APPROX.
INLET
LOCATION

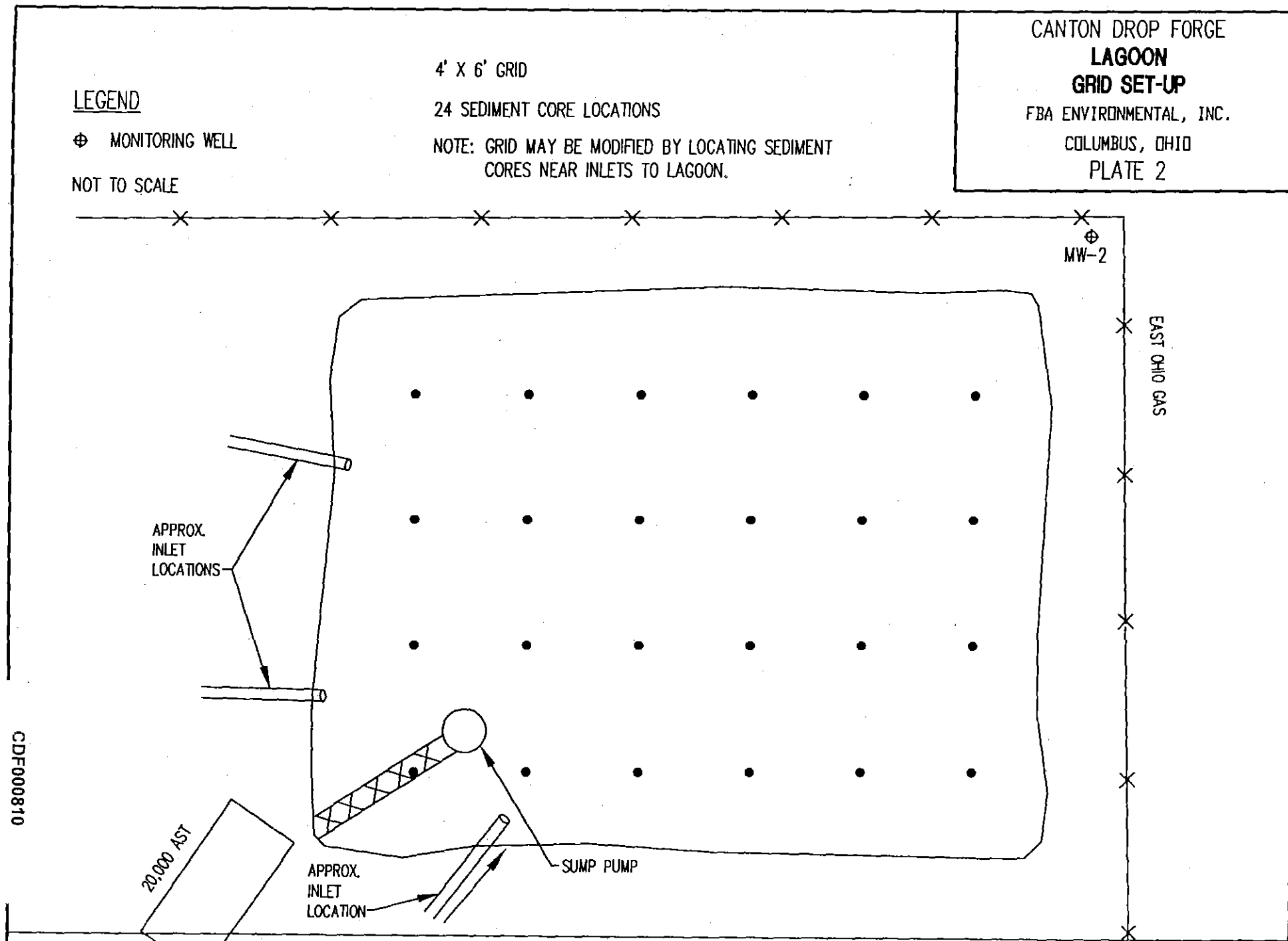
SUMP PUMP

⊕
MW-2

EAST OHIO GAS

20,000 AST

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ATTACHMENT B
HEALTH AND SAFETY PLAN

18.0 Health and Safety Procedures for the Field

All personnel will read the Health and Safety Procedures for the Field, section 18 in the QAPP, prior to working in the field. Any questions they have will be directed to the Site Safety Officer and answered before signing the acknowledgment.

18.1 Personnel Responsibilities For Site Safety

18.1.1 Site Coordinator

The responsibilities of the Site Coordinator are:

- 18.1.1.1 To ensure that all personnel allowed to enter the site (i.e., the EPA, contractors, state officials, visitors) are aware of the potential hazards associated with the substances known or suspected to be on the site, and with the potential hazards on the boats;
- 18.1.1.2 To ensure that said personnel are aware of the provisions of this plan and are instructed in the safety practices defined in the plan, including its emergency procedures;
- 18.1.1.3 To ensure that the appropriate safety equipment is available to all personnel on the site;
- 18.1.1.4 To direct the safety monitoring efforts of the Site Safety Officer; and
- 18.1.1.5 To correct any work practices or conditions under his control that may result in exposure to hazardous substances or injury to personnel.

18.1.2 Site Safety Officer

The Safety Officer is responsible for implementing the safety plan at the site. The Safety Officer shall:

- 18.1.2.1 Monitor compliance of workers relative to pre-established personnel protection levels (i.e., use of necessary clothing and equipment) to ensure the safety of personnel;
- 18.1.2.2 Notify the Site Coordinator of discrepancies or violations of the safety plan;

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- 18.1.2.3 Evaluate weather and chemical hazard information, and recommend to the Site Coordinator any necessary modification of work plans and personal protection levels to maintain personnel safety. Recommend stopping work if any operation threatens worker or public health or safety;
- 18.1.2.4 Select protective clothing and equipment and ensure they are properly stored and maintained; and
- 18.1.2.5 Know emergency procedures, evacuation routes, and the telephone numbers of the ambulance, local hospital, poison control center, fire department, and police department.
- 18.1.3 Field Team Leader
 - 18.1.3.1 In the absence of the Site Coordinator and Site Safety Officer, the Field Team Leader will be responsible for enforcing safety procedures; and
 - 18.1.3.2 Coordinate with Site Safety Officer in determining protection levels and reviewing site conditions affecting health and safety.

18.2 General Safety Practices

- 18.2.1 Personnel requiring the use of respiratory protective equipment should not have excessive facial hair, which interferes with a satisfactory fit of the mask-to-face seal.
- 18.2.2 Contact with contaminated surfaces or surfaces suspected of being contaminated, should be avoided. Do not: walk through puddles, mud, and other discolored surfaces; kneel on the ground; or lean, sit or place equipment on drums, containers, vehicles or the ground.
- 18.2.3 Medicine and alcohol can increase the effects of exposure to toxic chemicals. Unless specifically approved by a qualified physician, prescription drugs should not be taken by personnel assigned to operations where the potential for absorption, inhalation, or ingestion of toxic substances exists.
- 18.2.4 Drinking and driving is prohibited. Driving at excessive speeds is prohibited.
- 18.2.5 No person will work alone on a potentially dangerous site.

- 18.2.6 Proper preparation must be undertaken before leaving for a site visit. Each person will have access to a first aid kit, fire extinguisher, flashlight, and proper clothing, which will include coveralls, hard hat gloves, safety glasses, a Type I, II, or III PFD and a respirator.
- 18.2.7 All personnel are required to contact the site manager upon arriving at or when leaving the site. This is especially important when working alone.
- 18.2.8 All personnel are required to wear disposable gloves when in contact with water or sediment samples.
- 18.2.9 A shirt and long pant must be worn at all times.
- 18.2.10 Personal flotation devices must be worn at all times while on the boat(s), on the shore, or any other place where it is possible to fall into the water.
- 18.2.11 Safety glasses must be worn while on site.
- 18.2.12 No person shall wear contact lenses while working in the field.
- 18.2.13 Eating, drinking, chewing gum, chewing tobacco, smoking, or any practice that increase the probability of hand-to-mouth transfer or ingestion of material is prohibited in any area designated as contaminated.
- 18.2.14 Hands and face must be thoroughly washed upon leaving the work area and particularly before eating or drinking.
- 18.2.15 Skin abrasions must be thoroughly protected to prevent chemicals from penetrating the abrasion.
- 18.2.16 Adverse climate conditions - cold or hot - are important considerations in planning and conducting site operations. The effects of ambient meteorological conditions on personnel can cause physical discomfort, loss of efficiency, personal injury and increase accident probability. Heat stress, due to protective clothing decreasing body ventilation, is an important factor. The following recommendations will help reduce heat stress. Their applicability is dependent on evaluating the conditions particular to a specific project.
 - 18.2.16.1 Provide plenty of liquids to replace loss of body fluids. Employees should replace water by drinking frequently (outside of work area).

18.2.16.2 Establish a work schedule that will provide sufficient rest periods for cooling down.

18.2.16.3 Heat stress symptoms should be observed for all levels of protection, but especially in Level A and B.

18.3 Fire Prevention

18.3.1 Approved safety cans will be used to transport and store flammable liquids.

18.3.2 All gasoline and diesel-driven engines requiring refueling must be shut down and allowed to cool before filling.

18.3.3 Smoking is not allowed during any operations in close proximity to fugitive petroleum products or solvents in free-floating, dissolved or vapor forms, or other flammable liquids. Smoking is not allowed on the boats at any time. Smoking is allowed only in designated locations during authorized lunch periods and work breaks.

18.3.4 No open flame or spark is allowed in any area containing petroleum products, or other flammable liquids.

18.3.5 Two 2-1/2 pound Halon fire extinguishers will be available on the pontoon boat(s).

18.4 Electrical Equipment

18.4.1 The electrical generator will be isolated electrically from the boat frame with rubber blocks and mats, equipped with ground fault outlets, and bolted securely in place.

18.4.2 All electrical equipment must be equipped with three-wire grounded leads.

18.5 Boat Safety

18.5.1 The 30' pontoon boat(s) will have the following safety equipment on board at all times:

- one Type IV throwable PFD
- two 2-1/2 pound Halon fire extinguishers
- one air-powered horn
- one 2' x 2' orange distress flag

- first aid kit
- portable eye wash station
- anchor with ~ 100' of line

- 18.5.2 The working decks of the pontoon boat(s) will be covered with a non-skid surface. Care will be taken to minimize slippery surface conditions.
- 18.5.3 The pontoon boat(s) will have side railings, except where they will interfere with the work to be done.
- 18.5.4 Each person, while on board any boat, will wear their PFD.
- 18.5.5 In the event of an electrical storm or rough surface conditions, work will stop and the personnel will go ashore.
- 18.5.6 All personnel will have basic training in boat safety and in the operation of and preventative maintenance of outboard motors.

18.6 Personal Protective Equipment

- 18.6.1 Each member of the field crew will have for their personal use the following equipment:
- Tyvek outer coveralls
 - disposable vinyl gloves
 - rubber outerboots
 - full face respirators equipped with dust/mist and organic vapor cartridges
 - hard hat
 - safety glasses
- 18.6.2 Organic vapor concentrations will be continuously monitored with a MicroTip PID. If at any time the organic vapor concentrations exceed 50 ppm, all personnel will use full face respirators until such time that the organic vapor concentrations have not exceeded 50 ppm for one half hour.
- 18.6.3 If at any time the organic vapor concentrations exceed 250 ppm, air supplied respirators will be utilized by all personnel until such time that the organic vapor concentrations have not exceeded 50 ppm for one half hour.

18.6.4 All personnel directly involved with the coring operation will utilize at a minimum the following personal protective equipment:

- tyvek outer coveralls
- rubber outerboots
- disposable vinyl gloves
- hard hat
- safety glasses

18.6.5 All personnel involved in cutting open the aluminum core tubes will utilize the following personal protective equipment at a minimum:

- Tyvek outer coveralls
- rubber outerboots
- disposable vinyl gloves
- safety glasses

18.7 Review of Exposure Symptoms

Symptoms of exposure to the chemicals of concern should be reviewed by all site personnel. The Site Safety Officer or designated field worker should be watchful for outward evidence of changes in worker health. These outward symptoms may include skin irritations, skin discoloration, eye irritations, muscular soreness, fatigue, nervousness or irritability, intolerance to heat or cold, or loss of appetite. Employees should routinely be asked to assess their general state of health during the project.

18.8 First Aid Procedures and Emergency Treatment

In all cases of poisoning, follow standard procedures for poison management, first aid, and cardiopulmonary resuscitation. Whenever transporting a poisoned person to a hospital, bring the container, label, or other information concerning the product (without delaying transport) to assist medical personnel with diagnosis and treatment. Four different routes of exposure and their respective first aid/poison managements are outlined below.

18.8.1 Ingestion:

1. Notify the Site Safety Officer
2. Call the Poison Information Center 1-800-682-9211.
3. Call the ambulance service if necessary (Name Number).

18.8.2 Inhalation:

1. Stop exposure by moving person from contaminated area to clean air area.
2. Notify the Site Safety Officer.
3. Call the Poison Information Center (1-800-682-9211).
4. Call the ambulance service if necessary (___Name___ ___Number___).
5. If necessary, transport person to an emergency medical facility promptly.

18.8.3 Skin:

1. Wash off skin immediately with a large amount of water; use soap if available.
2. Remove any contaminated clothing and rewash skin.
3. Notify Site Safety Officer

18.8.4 Eyes:

1. Gently rinse eye immediately, using portable eyewash station for fifteen minutes, if possible, with eyelids held open.
2. Never permit the eyes to be rubbed.
3. Notify Site Safety Officer
4. Transport person to an emergency medical facility promptly.

18.9 Emergency Telephone Numbers

In the event of an emergency, the following local sources of assistance are available.

18.9.1 Hospitals

_____ Hospital	_____
_____ Hospital	_____
Emergency Room	_____

18.9.2 _____ Fire Department _____

18.9.3 _____ Ambulance Service _____

18.9.4 Poison Control Center 1-800-362-9922

18.9.5 _____ Emergency Response _____

18.9.6 _____ Security _____

18.9.7 EPA Emergency Response _____

18.9.8 Contractor Office _____

18.10 Acknowledgment

I, _____ have read the Site Safety Plan pertaining to the _____ Name of Site _____. I understand the physical and chemical hazards present at the site and any questions I had regarding the plan have been satisfactorily answered. I hereby certify that I have been trained under 29. CFR 1910.120 and are currently under a medical monitoring program sponsored by my employer.

I have been fitted and properly instructed on respirators, its uses and limitations. I, also, understand that it is my responsibility to properly clean, maintain and store my respirator in a clean area unless other arrangements have been made to assure maintenance and care of the respiratory protection.

Signature _____
Date _____

SEP 6 1994

CANTON DROP FORGE

September 2, 1994

Mr. Keith Houseknecht
Canton Drop Forge
4575 Southway St. S.W.
Canton, Ohio 44706

RE: Profiling of Pond Sludges

Dear Mr. Houseknecht:

Thank you for the opportunity to provide you and Canton Drop Forge with our proposal for job tasks associated with the profiling of pond sludges that remain following evacuation of a majority of the emulsified oil in the settling pond at the southwest corner of your Southway Street facility.

Per our telephone conversation yesterday, I have discussed this issue with both our Environmental Division Manager and our Landfill Division Manager, both of whom agree to perform the following services at no charge to Canton Drop Forge:

- Establish a grid system to be used as a point of reference for data acquisition and future site work.
- Provide personnel and equipment required to effectively transverse the pond.
- Utilize a pontoon specifically designed for acquiring liquid, sludge and solid phase sample material.
- Utilize a manually-operated calibrator in an attempt to determine the location consistency and volumes of sludges that exist in individual grids within the pond.
- Obtain a maximum of 40 sludge samples from the pond, assuming grids approximating 500 sq. ft. in size.
- Provide Canton Drop Forge with pond mapping indicating the approximate mass contours and estimated depths of sludges.

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SEP 6 1994

CANTON DROP FORGE

Mr. Houseknecht
September 1, 1994
Page 2

- At the direction of Canton Drop Forge, assist in compositing sample materials and properly identify same.
- Provide Canton Drop Forge a written summary of all personnel, equipment, and supplies utilized during on-site activities.

We would ask Canton Drop Forge to assist with this project in the following manner:

- Provide Kelchner any current information with respect to the pond prior to our initiating site work.
- Assure Kelchner Environmental an opportunity to submit a proposal for any and all future work associated with the pond and an assurance that our proposal will be given fair consideration.
- Allow Kelchner personnel access to restroom facilities and portable water during our time on site.
- Provide a Canton Drop Forge Site Manager, who can oversee the site work and make decisions relative to the compositing of samples and identification of sludge matrices.
- Provide Kelchner with a report of the data and analytical results acquired as a result of this project.

As we discussed via telephone, you will receive no billing for these services. Rather, when our proposal for additional pond abatement work is submitted, there will appear a separate line item reflecting the cost of these services as a part of our competitive bid. Please note that our proposal does not include the job tasks or costs associated with the selection of an analytical laboratory, sampling supply's, transportation of samples to the selected laboratory, or the analysis performed on the sampled material.

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CANTON DROP

Mr. Houseknecht
September 1, 1994
Page 3

We trust that this proposal is received in the same spirit of mutual cooperation in which it is issued.

Respectfully,

KELCHNER ENVIRONMENTAL, INC.



Randy Farneth
Corporate Accounts Manager

RF/dko

CDF000821

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PAUL K. MILLER, P.S.

*JPB
Looking for
not an answer
for
with Hammontree
from a location
who does the work
and want a person
for sample & test
to him for analyzing
multiple of samples
9/23*

Canton Drop Forge
4575 Southway Street
P.O. Box 6902
Canton, Ohio 44706-0902

Attention: **Mr. Houseknecht**

Dear Mr. Houseknecht:

This letter represents Hammontree & Associates response to your request for proposal concerning the sampling of sludges from the basin of lagoon #1 at your Southway Street Facility.

The following proposal is based on our understanding that you plan to dredge the lagoon and use it as a stormwater and treated process water retention pond.

If you have any questions or comments that may alter the sampling or testing, please call so we can develop a plan that suits your needs.

Respectfully,

HAMMONTREE & ASSOCIATES, LIMITED

Gene G. Hill

Gene G. Hill, E.I.T., M.S.

Prior to excavation and disposal of materials lining lagoon #1, it is necessary to determine whether these materials are considered hazardous (as defined in CFR 40, part 261).

If the materials tested are determined to be non-hazardous they may be disposed of in a local non-hazardous licensed landfill. If the materials tested are found to be hazardous other options of treatment/disposal must be investigated. The characteristics of a waste that determine whether a hazardous classification is warranted are toxicity, corrosivity, ignitability and reactivity.

To perform the sampling and testing required to classify the sludge from lagoon #1, Hammontree & Associates will follow procedures outlined in "Test Methods for Evaluating Solid Waste" (SW 846) distributed by the Federal Environmental Protection Agency.

Hammontree & Associates will retrieve four to six sludge/sediment samples and have the following analysis performed:

1. Full Toxicity Leaching Characteristic Procedure (TCLP) (excluding herbicides & pesticides) **This will cover metals and organics for toxicity**
2. Reactive Cyanide - **reactivity**
3. Reactive Sulfur - **reactivity**
4. Flash Point - **ignitability**
5. pH - **corrosivity**
6. Paint Filter Liquids Test - **landfills require solid wastes**
7. PCB's - **due to past detection** (Governed under Toxic Substance Control Act) (TSCA)
8. Total Petroleum Hydrocarbons (TPH) - **due to oil and grease contamination**

These tests are required by landfills prior to accepting industrial/oil contaminated sludge.

We feel that determining the hazardous/non-hazardous status of the material should be completed prior to any further studies or investigations.

We expect laboratory analysis of each sample to cost \$1,250.00. Our services will include developing a sampling plan, retrieving samples, laboratory analysis, and a report discussing the results of the analysis and options available.

The estimated cost of the outlined work is as follows:

Prepare sampling plan according to SW846	680.00
Retrieve samples (2 man crew)	1,200.00
Lab analysis (6 samples)	7,500.00
Analysis/Options Report	2,200.00
Estimated Cost	\$11,580.00

In reviewing this proposal for professional services, it should be understood that the above proposal items and their corresponding fees do not necessarily represent the full scope of services required for the project. Rather, it represents our best effort to set forth those services which we believe to be those requested by you, the client, and/or those we can determine to be needed to accomplish a particular objective. However, we recognize, and we ask that the client recognize, that as the project progresses, the scope of services as originally defined may change in content to include work not initially identified. Several factors will cause this to happen:

Better understanding of the project, the site, and the client's goals as progress on the project is made.

1. Additional requirements identified by the client.
2. Policy changes or additional requirements by the permitting agencies.
3. As these influences occur and are identified, we will advise you of same and seek the direction to proceed.

Work required as a result of the above will be "extra work" outside of the original scope of services. Upon your direction, we will perform the work under the "Work Not Specified" section of this proposal or we can provide you with a separate proposal should the scope so indicate.

WORK NOT SPECIFIED

Work not specified in the above proposal items will not be performed without your prior knowledge and approval. When merited, we will provide you with a lump sum fee for additional services. Otherwise, additional services will be performed on an hourly basis, at the following rates: \$92.00 per hour for field crews; \$57.00 per hour for computing, calculations, legal descriptions, engineering, planning and associated coordination activities; \$82.00 per hour for services by a Registered Engineer for representation before public bodies including meetings, and processing of plans, permits, etc. through those agencies.

HOURLY CHARGES

Hourly work will be billed at our current prevailing rates.

w:southway



**FLOYD
BROWNE
ASSOCIATES,
INC.**

181 S. MAIN ST., P.O. BOX 587, MARION, OHIO 43301-0587
(614) 383-2187 FAX (614) 382-1420

2(b)
3

GEO 194-94
Canton Drop Forge

August 10, 1994

Mr. Keith Houseknecht
Canton Drop Forge
4575 Southway Street S.W., P.O. Box 6902
Canton, Ohio 44706

Dear Mr. Houseknecht:

Subject: Lagoon #1 Sampling and Characterization

Per our site meeting on July 20, 1994, FBA Environmental Inc. is pleased to provide Canton Drop Forge with a proposal to complete the sampling and to determine the physical characteristics of Lagoon #1.

PROPOSED SCOPE

The services to be proposed are based on assumptions concerning the site characteristics and working conditions at the Canton Drop Forge facility. In the likelihood that uncontrollable situations arise, i.e. poor weather conditions, restricted mobilization within the Canton Drop Forge facility, difficult accessibility surrounding the Lagoon #1 or any other potentially hazardous conditions while performing this type of specialized service, FBA Environmental will promptly notify Canton Drop Forge of these occurrences and their effect on the proposed scope of work and cost estimate.

Task 1-Equipment Mobilization

To successfully complete the characterization of Lagoon #1, FBA Environmental will mobilize a pontoon boat, 24 sections of 3-inch aluminum pipe (30 foot lengths), a vibracoring device and all other necessary support equipment to the Canton Drop Forge facility. To prevent damage to our equipment and or alteration of the Lagoon, a truck mounted crane will be mobilized to the site to initially position the pontoon boat in the Lagoon. At the completion of all field activities, a truck mounted crane will remove the pontoon boat from the lagoon. FBA Environmental anticipates the need for a four (4) man field crew. The field crew will consist of experienced personnel who have performed this type of service at other facilities around the country. Each crew member has been certified to work in potentially hazardous conditions and

Mr. Keith Houseknecht
Canton Drop Forge
August 11, 1994
Page 2

are properly trained with their 40-hour OSHA certification. FBA Environmental anticipates the following people will be dedicated to this project throughout the duration:

Mr. Gregory McComas--Project Hydrogeologist
Mr. Mike Burge--Senior GeoTechnician
Mr. Gerald Nauer--GeoTechnician
Mr. Matt Kaluza--GeoTechnician

Task 2-Site Preparation

Upon arrival at the Canton Drop Forge facility, FBA Environmental will need a "clean area" to serve as a decontamination pad. The decontamination pad will be used for cleaning road grime and or machine oils from the aluminum vibracoring pipe. Each section of aluminum pipe will be steam cleaned with a portable steam cleaning unit. In addition, a sample retrieval and extraction area will be established near the lagoon which will also be utilized as a storage area for ancillary supplies and equipment.

Prior to sediment sample collection, a site meeting between Canton Drop Forge and FBA Environmental will take place in order to coordinate the logistics and method for maintaining accurate grid transects while performing vibracore sampling. Upon mutual consent on the grid spacing and number of sample cores, FBA Environmental will establish a transect to be followed during sample progression across Lagoon #1. For the purposes of this proposal, a 4 x 6 transect with 25 foot spacings has been chosen for the Lagoon. This arrangement yields approximately 24 sediment cores. If Canton Drop Forge prefers a 3 x 6 grid with 30 foot spacings, 18 sediment cores would be collected. Sampling and laboratory costs are directionally proportional to the number of sediment cores collected. At each sampling point, a horizontal and vertical datum will be established to assist in the bottom profile of the lagoon.

Due to the nature of this type of field work, solid waste materials will be generated, i.e. excess sediment, waste plastic, personal protective gear, spent/cut aluminum tubes and decontamination water. To date, it is assumed that this waste material will be managed by Canton Drop Forge for proper disposal based on hazardous characterization tests to determine the nature of the sediment material.

Task 3-Sediment Sample Acquisition

After all quality control measures and health and safety provisions have been prepared, field crew members will initiate sampling and physical description of the sediments recovered from each sampling tube. Methods employed during sample collection will adhere to the protocols outlined in the attached Sampling Plan (*Attachment A*). Sediment samples will be sent to Zande Environmental Service, Inc. in Columbus, Ohio for chemical analysis. The attached Table No.

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Mr. Keith Houseknecht
Canton Drop Forge
August 11, 1994
Page 3

2 outlines the chemical constituents and frequency of sediment samples to be collected for laboratory analysis. FBA Environmental suggests that material safety data sheets (MSDS) or other historical information concerning the oils in question be provided at our logistics meeting prior to starting field work activities. With this information, FBA Environmental should be able to reduce the chemical constituents to a more reasonable list, thus saving Canton Drop Forge the added expense of unnecessary sampling and analysis.

Because the materials from this lagoon are of an unknown origin, FBA Environmental will perform this work in a modified Level C personal protection. Because of the type of work involved and potential risks, field personnel will comply with FBA Environmental's Health and Safety Plan (HASP). An example HASP is provided in *Attachment B* as a means of illustrating the basic outline and subjects discussed. When awarded this project, FBA Environmental will finalize the HASP and submit a copy to Canton Drop Forge for their review.

Task 4-Lagoon #1 Characterization Report

Upon completion of vibracoring sample collection, FBA Environmental will compile cross sections, stratigraphic descriptions of sediment encountered, subsurface topographic maps will be generated and volumetric capacities of sediment within the Lagoon #1 will be estimated. Upon receipt of the analytical data, FBA Environmental will correlate stratigraphy and chemical concentration values within an aerial extent. In addition, isopleth maps will be generated from analytical data points to determine chemical constituent distributions both horizontally and vertically within the sediment. All information will be compiled and bound in a report format for internal use by Canton Drop Forge. A preliminary draft report can be submitted to you prior to final report completion if you so choose.

PROJECT QUOTATION

FBA Environmental's fee for the services described above will be invoiced on a time-and-expense basis with personnel assigned to the project billed at our current hourly rates, plus expenses including vehicle travel and standard reimbursable rates. The costs to perform this work are outlined in the attached Table No. 1 for your review. FBA Environmental estimates the cost to be Forty Two Thousand Fifty Six Dollars (\$42,056.00). This offer remains valid for 30 days; acceptance thereafter is subject to our approval.

INVOICING PROCEDURES

Invoices will be submitted monthly based on the amount of work actually performed. If the CLIENT fails to make any payment due FBA Environmental within thirty (30) days after receipt of FBA Environmental's invoice, the amounts due FBA Environmental may include a charge at the rate of 1-1/2% per month from said thirtieth day. In addition, FBA Environmental may

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Mr. Keith Houseknecht
Canton Drop Forge
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suspend services under this Agreement until all outstanding invoices have been paid in full plus accrued interest.

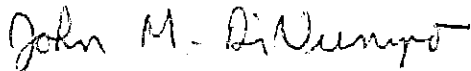
PROJECT INITIATION PROCEDURES

If this proposal is satisfactory, you may authorize FBA Environmental to proceed at once by signing three copies of this letter and returning two copies to FBA Environmental. If there is a need for clarification or if changes in contractual arrangements are desired, please contact John DiNunzio or Greg McComas.

FBA Environmental looks forward to working with you and providing professional services to Canton Drop Forge. If any of FBA Environmental's costs do not adequately encompass the scope of this project or seem improper, please call so we can discuss the anticipated work and cost of services proposed.

Sincerely,

FBA Environmental, Inc.



John M. DiNunzio, CPG
Vice President

*attachments: Attachment A, Sampling Plan
Attachment B, Health and Safety Plan*

ACCEPTED: Canton Drop Forge

By: _____

Title: _____

Date: _____

CDF000828

TABLE NO.1

Task 1-Equipment Mobilization

a) Pontoon boat, equipment and crew	\$1,000.00
b) Truck mounted crane (placement and removal)	\$1,000.00

Task 2-Site Preparation, Decontamination and Cleanup

Construct decontamination pad and sample retrievable tables, load equipment, prepare pontoon boat and vibracoring system, decon-equipment at the end of the job.	\$4,750.00
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Task 3-Sediment Sample Acquisition

a) On-site sampling - assumes 5 field days with 4 man crew	\$11,880.00
b) Per diem/expenses - assumes 7 days, 6 nights with 4 man crew	\$1,700.00

Task 4-Lagoon #1 Characterization Report

Project management, data compilation, interpretation and report preparation	\$7,110.00
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Laboratory Costs

Assumes one sample per sediment core and no PCB confirmation samples	\$8,407.00
--	------------

Additional Costs

Equipment rental (pontoon boat, jon boat, OVA, steam cleaner, generator, decon equipment, vibracore) \$672/day Assume 5 days of rental	\$3,460.00
--	------------

Expendables	\$2,749.00
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TOTAL PROJECT COST	\$42,056.00
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Note:

Costs for surveying are assumed to be contracted directly through Canton Drop Forge.
Surveying costs are not included in this estimate.

CDF000829

Table No. 2
Canton Drop Forge (Lagoon Characterization)
Analytical Sampling Program
(Assumes 24 sediment cores)

<u>CHEMICAL CONSTITUENT</u>	<u>FREQUENCY OF SAMPLES</u>
TPH (Method 8015)	minimum of 24
PCB (field screening kits)	minimum of 24
PCB (Method 8080)	only positive detections with field kits
VOCs (Method 8240)	24 (from highest OVA reading in field)
SVOCs (Method 8270)	20% of total samples collected (min. 5)
Metals*	20% of total samples collected (min. 5)
TCLP**	one
Flash point	minimum of 2 on selected samples

Notes:

** Metals include arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver.*

***TCLP includes metals and volatile organics.*

CDF000830

ATTACHMENT A

FIELD SAMPLING PLAN

1.0 Introduction

The following plan describes the objectives and methods used to sample the sediment within Lagoon #1 at the Canton Drop Forge facility in Canton, Ohio, as illustrated in Plate No. 1

1.1 Sampling Objective

The objective of the sampling program is to provide physical measurements and descriptions of sediment at the bottom of the lagoon. If stratification exists, an attempt will be made to map the top of each sediment type, to determine the volume of each sediment type, and analyze the chemical nature of each stratigraphic zone through laboratory procedures.

1.2 Core Sample Location

One sediment core will be collected at the grid intersect as illustrated on the Canton Drop Forge Plate No. 2. Sediment core locations may be altered to fully delineate the areas immediately adjacent to the lagoon inlet locations. To adequately locate each sample core collected, FBA Environmental proposes to survey each sample location in order to maintain datum control. If Canton Drop Forge prefers to use a local surveyor, FBA Environmental will coordinate with that individual the grid setup and scope of the vibracoring project.

1.3 Core Sample Frequency

One sediment core will be collected at each grid intersect as illustrated on Plate No. 2. Based on the proposed grid pattern as defined by FBA Environmental, 24 sediment cores will be collected from Lagoon #1. The grid is based on a 4 x 6 transect with cores collected every 25 feet along the transects. Each core location (24) should adequately define the characteristics of the lagoon.

All sediment cores collected will be described by the project geologist. To maintain consistent descriptions and nomenclature, the same project geologist will log each core collected from the grid. To characterize the chemical composition of sediment within Lagoon #1, a minimum of one sample for laboratory analysis will be collected from each sediment core. The number of samples per sediment core or per sediment horizon has not been defined at this time by either Canton Drop Forge or FBA Environmental. As a general rule, an analytical sample should be collected from at least every 5 feet of sediment recovery. However, based on our first transect run and after general sampling conditions have been evaluated, a group decision will be made as to what criteria defines a stratigraphic zone within the sediment, and at what locations do we focus our sampling effort, i.e. inlet locations.

1.4 Sample Matrices

Samples of the Lagoon #1 sediment will be collected from each grid location. The vibracore will be advanced to refusal or natural sediment at each sampling point. If natural materials are encountered and are able to be penetrated with the vibracore, FBA Environmental proposes to collect selected natural sediments in order to delineate the transition zone between the lagoon bottom and "non-impacted" natural materials.

Sample matrices are expected to be either sludge, oil saturated bottom sediments, construction fill materials and possibly sand, silt, and clay from the naturally occurring unconsolidated materials beneath the lagoon sediment.

1.5 Sample Designation

All samples will be designated with a unique sample number. The sample designation code will be as follows:

LG-SDG##-C##-##

where;

LG = Lagoon #1

SD = Sediment matrix

G## = Grid Location

C## = Core number

= Sample number

In addition, consecutive numbers (starting with 1) will be assigned to each sample to track the number of samples associated with the project.

1.6 Sediment Core Sampling Equipment

To collect cores of the bottom sediment from the Lagoon #1, a vibracore system will be employed. The system consists of a vibracore unit, tripod, tripod extension bar, core mounting heads, core removal clamps, and chain hoist. The equipment will be placed on a floating platform which will be used to float the equipment into position above the sample location point.

1.7 Sediment Core Collection Procedure

The floating platform containing the vibracore sampling equipment and accessories will be maneuvered to a transect grid intersection as defined by the proposed survey. The hatch located at the front of the platform will be opened and a three inch I.D. aluminum tube with a maximum length of 30-feet will be inserted into the water to the bottom of Lagoon #1. The vibracore head will be attached to the tube at a height of approximately 6.5 feet above the deck of the platform.

The vibracore unit will be started and idled until an all clear sign is given. The vibracore unit will be throttled-up and the aluminum-tube will be advanced until the deck of the platform interferes with the head assembly. The vibracore unit will be placed back into an idle position while the head assembly is loosened and re-attached at a height approximately 6.5 feet above the deck. The process continues until refusal is encountered or until the depth of penetration exceeds the length of the tube. Upon encountering refusal, the tube will be cut off to a convenient height above the deck, core removal clamps will be attached to the tube, and a slide hammer assembly will be placed over the tube and rest upon the clamp. The tube will then be forced down with the slide hammer until no further penetration is reached. The attachments are removed and the tube will be

cut off again at a height just above deck level or just below deck level. If a set of tubes are to be advanced before any extraction, then the tube is cut off below the deck. If the tube is to be removed immediately, then the tube is cut off above the deck.

At this point the depth to sediment will be measured both inside and outside the tube with a weighted measuring tape and the information will be recorded. The measurements are required to provide the depth to bottom elevation and to determine the percent recovery of the sediment core. The top of the tube will then be sealed using a plastic shelby tube cap with duct tape to maximize core recovery by creating a vacuum within the tube when it is being removed.

The sealed tube will then be surveyed for elevation of the top of the tube and for location within the grid system.

Following this procedure, the sealed tube will then be removed. A tripod will be positioned over the tube, a core removal clamp attached to the tube, and a chain hoist secured around the removal clamp. The tube will be pulled out of the sediment by using the hoist and lowering the clamp as needed.

Once the bottom of the tube is free from the sediment, the tube is manually tipped and pulled onto the platform as quickly as possible to maximize core recovery. The bottom end of the tube is capped and taped like the top.

The capped tube will be labeled with Grid Square Location Number, the sediment core number, and a directional arrow for the top portion of the sample. The overall length of the tube will be measured and recorded along with time of sediment core recovery. Depending upon the depth of water at the core location, the top of the tube may be shortened to remove excess water in order to minimize mixing during transportation. If the top is shortened, the tube will be sealed again with the same procedure as described above. Completed core tubes will be positioned and transported with the top end elevated to maintain the relative position of the sediment recovered.

In the likelihood that floating oil is present at the surface of the lagoon, it may be necessary to place a retrievable cork or knock out plug into the bottom of the tube prior to insertion into the lagoon. The cork will prevent oil from entering the tube at the surface of the lagoon. Once the tube is safely below the floating product layer, the cork will be "knocked out" and the tube will be ready for sediment sampling. This method should adequately assist in the determination of representative samples from the lagoon bottom.

1.8 Sediment Core Description and Sampling for Analysis

All sediment cores will be transported to a central staging area to be opened, sampled, and described. The staging area will consist of a containment area, a wooden trough used for cutting open the tubes, a sample-description table, and drums for the disposal of solids, liquids and personal protective equipment generated during sediment core description and sampling.

The containment area will consist of a wooden frame lined with six-mil plastic. Walkways made of wooden pallets will cross the area to preserve the integrity of the plastic liner. Tube cutting, core description, sampling, and decontamination of sampling equipment will take place within this area.

The wooden cutting trough will be lined with plastic before placing a tube within it. The trough will be sized to prevent movement of the tube during cutting. Each tube will be cut lengthwise, rotated approximately 120 degrees and cut lengthwise again. The aluminum tubes will be cut with a power saw. The blade will be set to a depth that barely cuts through the aluminum tube and causes minimal disturbance to the sediment. The tube will then be lifted out (2 or 3 people depending on length of sediment core recovery) and placed upon a plastic-lined description table.

Once the core tube is opened, it will be readied for the project geologist. The project geologist will measure core recovery, monitor organic vapor per every one foot of sediment recovery by using an organic vapor analyzer (OVA), describe the sediment core according to grain-size, lamination, structure, and general lithology. The sediment will be defined and classified according to the ASTM D 2488 method for the visual identification of soils and color will be assigned using the Munsell color chart. In addition, the sample cores will be checked for the presence of oils, construction debris and other unnatural materials.

Where volatile organic compound (VOC) analysis is required, a VOC sample will be collected from the zone which registered the highest organic vapor reading. VOC sample collection will precede core description in order to prevent any volatilization of gasses from the sampling process. Total petroleum hydrocarbon (TPH) samples will be collected from each distinctly separate stratigraphic zone from each sediment core. In addition, PCBs will be pre-screened by using field kits.

Sediment remaining after sediment core description and sampling will be placed in 5-gallon buckets and labeled with site ID, date and time. The method of storage has not yet been defined by Canton Drop Forge. If archive samples are needed, then the remaining sediment from each individual core should be contained separately from other cores in 5-gallon plastic buckets (this would also hold true if separate horizons were identified and sampled individually). If there is no long term need for additional sediment from Lagoon #1, then the remaining sediment could be placed in 55-gallon open top drums and stored until an appropriate disposal method has been chosen.

Used aluminum tubes will be power washed at the decontamination pad, cut into five to eight foot lengths and staged in an area designated by Canton Drop Forge for ultimate disposal.

1.9 Sample Analysis

Based on a site meeting between Mr. John DiNunzio of FBA Environmental and Mr. Keith Houseknecht of Canton Drop Forge on July 20, 1994, chemical analysis will be subcontracted to an OEPA certified laboratory by FBA Environmental. FBA Environmental proposes to use Zande Environmental Service, Inc. of Columbus, Ohio.

The following constituents will be sent to Zande for chemical analysis: metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver); semi-volatile organic compounds (SVOCs) using Method 8270. SVOC and metals analysis will be performed at a frequency of 20% of the total analytical samples collected. A minimum of one TPH sample will be collected from each sediment core. The TPH samples will be analyzed using Method 8015 in order to eliminate erroneous impacts from methagenic carbon compounds when Method 418.1 is used. A VOC sample will be collected from the zone which registered the highest organic vapor reading in each sediment core collected. VOC analysis will be completed by using Method 8240. In addition, polychlorinated biphenyl (PCBs) will be pre-screened in the field using Dextsil's PCB Screening Kit. Positive detection of PCBs with the pre-screening kits will be confirmed by the laboratory using Method 8080. TCLP and flash point samples should also be analyzed to determine the hazardous nature of the materials collected from Lagoon #1. These samples can be collected from either the 5-gallon buckets or 55-gallon drums which will contain excess sediment materials. The proposed analytical sampling program will supply necessary information as to the chemical nature of the sediments and supply potential BTU content information if remedial design and ultimate disposal is thought to include incineration. In addition, this arrangement reduces the analytical costs incurred by Canton Drop Forge while still providing defensible data for future closure activities. However, if Lagoon Closure is an imminent activity, State or Federal Agencies may need to be aware of this sampling plan prior to Lagoon Characterization. Please refer to Table 2 which outlines the proposed sampling arrangement for this project.

1.10 Sample QA/QC

Prior to field sampling activities, a coordination meeting between Canton Drop Forge and FBA Environmental will clarify the scope of services, grid size and level of quality assurance during the investigation. However, in the interim FBA Environmental proposes the following:

That field replicate sample be collected on a frequency of 10% of total samples collected. Field replicates verify laboratory precision and are usually required when dealing with State or Federal Agencies.

Where VOCs are proposed as an analytical parameter, trip blanks should be included in the sample shuttles to check for outside contaminants which render samples invalid due to VOC contamination during sample shuttle transport or storage. To save money on laboratory expenses, trip blanks will only be sampled if there are VOC detections in the sediment samples sent in with the sample shuttles.

1.11 Sample Transfer and Chain-of-Custody

The analytical laboratory will provide all sample containers for the collection of sediment samples. The appropriate preservatives associated with the required analysis will be included with the sample jars.

FBA Environmental will use strict Chain-of-Custody procedures to track the sample from the time of collection to the time of delivery to the laboratory.

1.11 Decontamination

All sample cores will be steam cleaned prior to use in Lagoon #1. The aluminum tubes may contain cutting oils from the manufacturer which may invalidate the analytical results obtained by the laboratory. Spent tubes will also be steam cleaned to remove all oils and residual sediments from the tubes.

The equipment used to collect samples from the sediment cores will be decontaminated. The equipment will be cleaned in an Alconox or Liquinox detergent, double rinsed in potable water and receive a final rinse of deionized water.

The sampling equipment will be decontaminated between each sediment core collection. All decontamination water will be contained within 55-gallon drums and staged at the sample description area for ultimate disposal. A grab sample will be collected from the decontamination water to test for the same constituents as the sediment with the exception of TCLP and flash point.

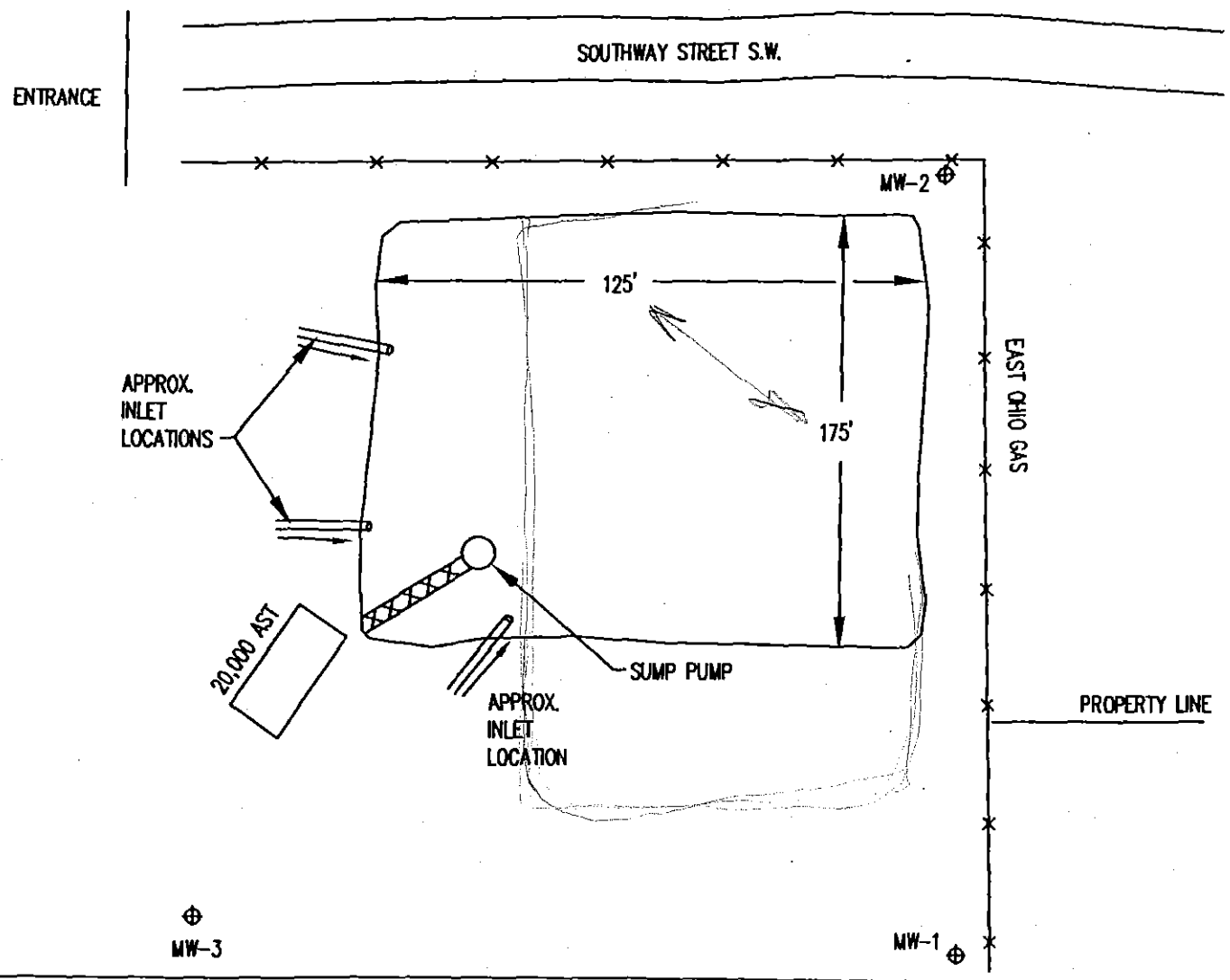
NOTE: During this project, no water samples will be collected from the lagoon or ground water beneath the lagoon. However, based on the findings of our initial laboratory results, a decision may be made to increase the amount of QA/QC related sampling to verify field procedures as well as laboratory methodologies. If Canton Drop Forge intends to submit the final Lagoon Characterization Report to a enforcement Agency in the future, it may be prudent to develop a Quality Assurance Plan to verify test methods and field procedures. In addition, if materials are found to be of a hazardous nature, increased sampling of waste materials may be necessary for proper disposal.

CANTON DROP FORGE
PROPOSED VIBRACORING LOCATIONS
AT SLUDGE LAGOON #1
FBA ENVIRONMENTAL, INC.
COLUMBUS, OHIO
PLATE 1

LEGEND

⊕ MONITORING WELL

NOT TO SCALE



CDF000837

CANTON DROP FORGE
LAGOON
GRID SET-UP
FBA ENVIRONMENTAL, INC.
COLUMBUS, OHIO
PLATE 2

4' X 6' GRID

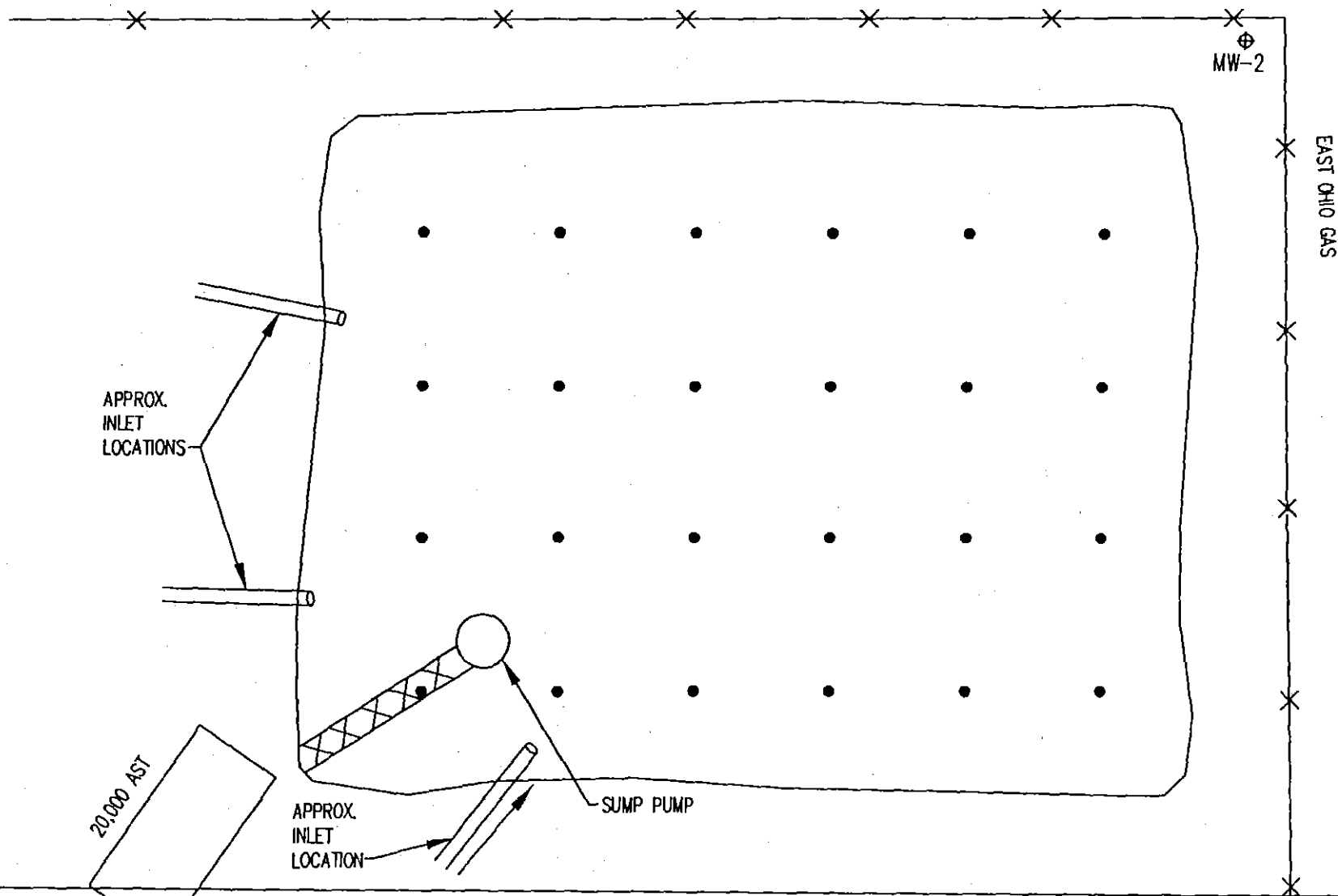
24 SEDIMENT CORE LOCATIONS

NOTE: GRID MAY BE MODIFIED BY LOCATING SEDIMENT
CORES NEAR INLETS TO LAGOON.

LEGEND

⊕ MONITORING WELL

NOT TO SCALE



CD/F000838

ATTACHMENT B
HEALTH AND SAFETY PLAN

18.0 Health and Safety Procedures for the Field

All personnel will read the Health and Safety Procedures for the Field, section 18 in the QAPP, prior to working in the field. Any questions they have will be directed to the Site Safety Officer and answered before signing the acknowledgment.

18.1 Personnel Responsibilities For Site Safety

18.1.1 Site Coordinator

The responsibilities of the Site Coordinator are:

- 18.1.1.1 To ensure that all personnel allowed to enter the site (i.e., the EPA, contractors, state officials, visitors) are aware of the potential hazards associated with the substances known or suspected to be on the site, and with the potential hazards on the boats;
- 18.1.1.2 To ensure that said personnel are aware of the provisions of this plan and are instructed in the safety practices defined in the plan, including its emergency procedures;
- 18.1.1.3 To ensure that the appropriate safety equipment is available to all personnel on the site;
- 18.1.1.4 To direct the safety monitoring efforts of the Site Safety Officer; and
- 18.1.1.5 To correct any work practices or conditions under his control that may result in exposure to hazardous substances or injury to personnel.

18.1.2 Site Safety Officer

The Safety Officer is responsible for implementing the safety plan at the site. The Safety Officer shall:

- 18.1.2.1 Monitor compliance of workers relative to pre-established personnel protection levels (i.e., use of necessary clothing and equipment) to ensure the safety of personnel;
- 18.1.2.2 Notify the Site Coordinator of discrepancies or violations of the safety plan;

CDF000839

- 18.1.2.3 Evaluate weather and chemical hazard information, and recommend to the Site Coordinator any necessary modification of work plans and personal protection levels to maintain personnel safety. Recommend stopping work if any operation threatens worker or public health or safety;
- 18.1.2.4 Select protective clothing and equipment and ensure they are properly stored and maintained; and
- 18.1.2.5 Know emergency procedures, evacuation routes, and the telephone numbers of the ambulance, local hospital, poison control center, fire department, and police department.
- 18.1.3 Field Team Leader
 - 18.1.3.1 In the absence of the Site Coordinator and Site Safety Officer, the Field Team Leader will be responsible for enforcing safety procedures; and
 - 18.1.3.2 Coordinate with Site Safety Officer in determining protection levels and reviewing site conditions affecting health and safety.

18.2 General Safety Practices

- 18.2.1 Personnel requiring the use of respiratory protective equipment should not have excessive facial hair, which interferes with a satisfactory fit of the mask-to-face seal.
- 18.2.2 Contact with contaminated surfaces or surfaces suspected of being contaminated, should be avoided. Do not: walk through puddles, mud, and other discolored surfaces; kneel on the ground; or lean, sit or place equipment on drums, containers, vehicles or the ground.
- 18.2.3 Medicine and alcohol can increase the effects of exposure to toxic chemicals. Unless specifically approved by a qualified physician, prescription drugs should not be taken by personnel assigned to operations where the potential for absorption, inhalation, or ingestion of toxic substances exists.
- 18.2.4 Drinking and driving is prohibited. Driving at excessive speeds is prohibited.
- 18.2.5 No person will work alone on a potentially dangerous site.

- 18.2.6 Proper preparation must be undertaken before leaving for a site visit. Each person will have access to a first aid kit, fire extinguisher, flashlight, and proper clothing, which will include coveralls, hard hat gloves, safety glasses, a Type I, II, or III PFD and a respirator.
- 18.2.7 All personnel are required to contact the site manager upon arriving at or when leaving the site. This is especially important when working alone.
- 18.2.8 All personnel are required to wear disposable gloves when in contact with water or sediment samples.
- 18.2.9 A shirt and long pant must be worn at all times.
- 18.2.10 Personal flotation devices must be worn at all times while on the boat(s), on the shore, or any other place where it is possible to fall into the water.
- 18.2.11 Safety glasses must be worn while on site.
- 18.2.12 No person shall wear contact lenses while working in the field.
- 18.2.13 Eating, drinking, chewing gum, chewing tobacco, smoking, or any practice that increase the probability of hand-to-mouth transfer or ingestion of material is prohibited in any area designated as contaminated.
- 18.2.14 Hands and face must be thoroughly washed upon leaving the work area and particularly before eating or drinking.
- 18.2.15 Skin abrasions must be thoroughly protected to prevent chemicals from penetrating the abrasion.
- 18.2.16 Adverse climate conditions - cold or hot - are important considerations in planning and conducting site operations. The effects of ambient meteorological conditions on personnel can cause physical discomfort, loss of efficiency, personal injury and increase accident probability. Heat stress, due to protective clothing decreasing body ventilation, is an important factor. The following recommendations will help reduce heat stress. Their applicability is dependent on evaluating the conditions particular to a specific project.
 - 18.2.16.1 Provide plenty of liquids to replace loss of body fluids. Employees should replace water by drinking frequently (outside of work area).

- 18.2.16.2 Establish a work schedule that will provide sufficient rest periods for cooling down.
- 18.2.16.3 Heat stress symptoms should be observed for all levels of protection, but especially in Level A and B.

18.3 Fire Prevention

- 18.3.1 Approved safety cans will be used to transport and store flammable liquids.
- 18.3.2 All gasoline and diesel-driven engines requiring refueling must be shut down and allowed to cool before filling.
- 18.3.3 Smoking is not allowed during any operations in close proximity to fugitive petroleum products or solvents in free-floating, dissolved or vapor forms, or other flammable liquids. Smoking is not allowed on the boats at any time. Smoking is allowed only in designated locations during authorized lunch periods and work breaks.
- 18.3.4 No open flame or spark is allowed in any area containing petroleum products, or other flammable liquids.
- 18.3.5 Two 2-1/2 pound Halon fire extinguishers will be available on the pontoon boat(s).

18.4 Electrical Equipment

- 18.4.1 The electrical generator will be isolated electrically from the boat frame with rubber blocks and mats, equipped with ground fault outlets, and bolted securely in place.
- 18.4.2 All electrical equipment must be equipped with three-wire grounded leads.

18.5 Boat Safety

- 18.5.1 The 30' pontoon boat(s) will have the following safety equipment on board at all times:
 - one Type IV throwable PFD
 - two 2-1/2 pound Halon fire extinguishers
 - one air-powered horn
 - one 2' x 2' orange distress flag

- first aid kit
- portable eye wash station
- anchor with ~ 100' of line

- 18.5.2 The working decks of the pontoon boat(s) will be covered with a non-skid surface. Care will be taken to minimize slippery surface conditions.
- 18.5.3 The pontoon boat(s) will have side railings, except where they will interfere with the work to be done.
- 18.5.4 Each person, while on board any boat, will wear their PFD.
- 18.5.5 In the event of an electrical storm or rough surface conditions, work will stop and the personnel will go ashore.
- 18.5.6 All personnel will have basic training in boat safety and in the operation of and preventative maintenance of outboard motors.

18.6 Personal Protective Equipment

- 18.6.1 Each member of the field crew will have for their personal use the following equipment:
- Tyvek outer coveralls
 - disposable vinyl gloves
 - rubber outerboots
 - full face respirators equipped with dust/mist and organic vapor cartridges
 - hard hat
 - safety glasses
- 18.6.2 Organic vapor concentrations will be continuously monitored with a MicroTip PID. If at any time the organic vapor concentrations exceed 50 ppm, all personnel will use full face respirators until such time that the organic vapor concentrations have not exceeded 50 ppm for one half hour.
- 18.6.3 If at any time the organic vapor concentrations exceed 250 ppm, air supplied respirators will be utilized by all personnel until such time that the organic vapor concentrations have not exceeded 50 ppm for one half hour.

18.6.4 All personnel directly involved with the coring operation will utilize at a minimum the following personal protective equipment:

- tyvek outer coveralls
- rubber outerboots
- disposable vinyl gloves
- hard hat
- safety glasses

18.6.5 All personnel involved in cutting open the aluminum core tubes will utilize the following personal protective equipment at a minimum:

- Tyvek outer coveralls
- rubber outerboots
- disposable vinyl gloves
- safety glasses

18.7 Review of Exposure Symptoms

Symptoms of exposure to the chemicals of concern should be reviewed by all site personnel. The Site Safety Officer or designated field worker should be watchful for outward evidence of changes in worker health. These outward symptoms may include skin irritations, skin discoloration, eye irritations, muscular soreness, fatigue, nervousness or irritability, intolerance to heat or cold, or loss of appetite. Employees should routinely be asked to assess their general state of health during the project.

18.8 First Aid Procedures and Emergency Treatment

In all cases of poisoning, follow standard procedures for poison management, first aid, and cardiopulmonary resuscitation. Whenever transporting a poisoned person to a hospital, bring the container, label, or other information concerning the product (without delaying transport) to assist medical personnel with diagnosis and treatment. Four different routes of exposure and their respective first aid/poison managements are outlined below.

18.8.1 Ingestion:

1. Notify the Site Safety Officer
2. Call the Poison Information Center 1-800-682-9211.
3. Call the ambulance service if necessary (Name Number).

18.8.2 Inhalation:

1. Stop exposure by moving person from contaminated area to clean air area.
2. Notify the Site Safety Officer.
3. Call the Poison Information Center (1-800-682-9211).
4. Call the ambulance service if necessary (Name Number).
5. If necessary, transport person to an emergency medical facility promptly.

18.8.3 Skin:

1. Wash off skin immediately with a large amount of water; use soap if available.
2. Remove any contaminated clothing and rewash skin.
3. Notify Site Safety Officer

18.8.4 Eyes:

1. Gently rinse eye immediately, using portable eyewash station for fifteen minutes, if possible, with eyelids held open.
2. Never permit the eyes to be rubbed.
3. Notify Site Safety Officer
4. Transport person to an emergency medical facility promptly.

18.9 Emergency Telephone Numbers

In the event of an emergency, the following local sources of assistance are available.

18.9.1 Hospitals

_____ Hospital	_____
_____ Hospital	_____
_____ Emergency Room	_____

18.9.2 _____ Fire Department _____

18.9.3 _____ Ambulance Service _____

18.9.4 Poison Control Center 1-800-362-9922

18.9.5 _____ Emergency Response _____

18.9.6 _____ Security _____

18.9.7 EPA Emergency Response _____

18.9.8 Contractor Office _____

18.10 Acknowledgment

I, _____ have read the Site Safety Plan pertaining to the _____ Name of Site _____. I understand the physical and chemical hazards present at the site and any questions I had regarding the plan have been satisfactorily answered. I hereby certify that I have been trained under 29. CFR 1910.120 and are currently under a medical monitoring program sponsored by my employer.

I have been fitted and properly instructed on respirators, its uses and limitations. I, also, understand that it is my responsibility to properly clean, maintain and store my respirator in a clean area unless other arrangements have been made to assure maintenance and care of the respiratory protection.

Signature _____

Date _____

R. JAMES HAMMONTREE, P.E., P.S.
BRUCE M. BAIR, P.E., P.S.
LAWRENCE D. PHILLIPS, P.E., P.S.
CHARLES F. HAMMONTREE, P.E., P.S.
RONALD P. DOHY, P.S.
GARY L. TOUSSANT, P.S.
JOSE E. TOLEDO, P.E., P.S.
RICHARD R. COOK, P.E., P.S.
JAMES C. BOLLIBON, P.E., P.S.

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KARL J. OPRISCH, P.E.
BARBARA H. BENNETT, P.E., P.S.
WILLIAM N. CLARK, P.E., P.S.
THOMAS J. KING, P.S.
PAUL K. MILLER, P.S.

September 7, 1994

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SEP 8 1994

CANTON DROP FORGE

Canton Drop Forge
4575 Southway Street
P.O. Box 6902
Canton, Ohio 44706-0902

Attention: **Mr. Houseknecht**

Dear Mr. Houseknecht:

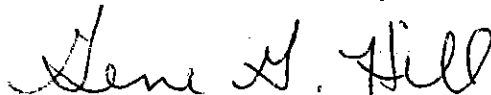
This letter represents Hammontree & Associates response to your request for proposal concerning the sampling of sludges from the basin of lagoon #1 at your Southway Street Facility.

The following proposal is based on our understanding that you plan to dredge the lagoon and use it as a stormwater and treated process water retention pond.

If you have any questions or comments that may alter the sampling or testing, please call so we can develop a plan that suits your needs.

Respectfully,

HAMMONTREE & ASSOCIATES, LIMITED



Gene G. Hill, E.I.T., M.S.

CDF000847

Prior to excavation and disposal of materials lining lagoon #1, it is necessary to determine whether these materials are considered hazardous (as defined in CFR 40, part 261).

If the materials tested are determined to be non-hazardous they may be disposed of in a local non-hazardous licensed landfill. If the materials tested are found to be hazardous other options of treatment/disposal must be investigated. The characteristics of a waste that determine whether a hazardous classification is warranted are toxicity, corrosivity, ignitability and reactivity.

To perform the sampling and testing required to classify the sludge from lagoon #1, Hammontree & Associates will follow procedures outlined in "Test Methods for Evaluating Solid Waste" (SW 846) distributed by the Federal Environmental Protection Agency.

Hammontree & Associates will retrieve four to six sludge/sediment samples and have the following analysis performed:

1. Full Toxicity Leaching Characteristic Procedure (TCLP) (excluding herbicides & pesticides) **This will cover metals and organics for toxicity**
2. Reactive Cyanide - reactivity
3. Reactive Sulfur - reactivity
4. Flash Point - ignitability
5. pH - corrosivity
6. Paint Filter Liquids Test - **landfills require solid wastes**
7. PCB's - **due to past detection** (Governed under Toxic Substance Control Act) (TSCA)
8. Total Petroleum Hydrocarbons (TPH) - **due to oil and grease contamination**

These tests are required by landfills prior to accepting industrial/oil contaminated sludge.

We feel that determining the hazardous/non-hazardous status of the material should be completed prior to any further studies or investigations.

We expect laboratory analysis of each sample to cost \$1,250.00. Our services will include developing a sampling plan, retrieving samples, laboratory analysis, and a report discussing the results of the analysis and options available.

The estimated cost of the outlined work is as follows:

Prepare sampling plan according to SW846	680.00
Retrieve samples (2 man crew)	1,200.00
Lab analysis (6 samples)	7,500.00
Analysis/Options Report	2,200.00
Estimated Cost	\$11,580.00

In reviewing this proposal for professional services, it should be understood that the above proposal items and their corresponding fees do not necessarily represent the full scope of services required for the project. Rather, it represents our best effort to set forth those services which we believe to be those requested by you, the client, and/or those we can determine to be needed to accomplish a particular objective. However, we recognize, and we ask that the client recognize, that as the project progresses, the scope of services as originally defined may change in content to include work not initially identified. Several factors will cause this to happen:

Better understanding of the project, the site, and the client's goals as progress on the project is made.

1. Additional requirements identified by the client.
2. Policy changes or additional requirements by the permitting agencies.
3. As these influences occur and are identified, we will advise you of same and seek the direction to proceed.

Work required as a result of the above will be "extra work" outside of the original scope of services. Upon your direction, we will perform the work under the "Work Not Specified" section of this proposal or we can provide you with a separate proposal should the scope so indicate.

WORK NOT SPECIFIED

Work not specified in the above proposal items will not be performed without your prior knowledge and approval. When merited, we will provide you with a lump sum fee for additional services. Otherwise, additional services will be performed on an hourly basis, at the following rates: \$92.00 per hour for field crews; \$57.00 per hour for computing, calculations, legal descriptions, engineering, planning and associated coordination activities; \$82.00 per hour for services by a Registered Engineer for representation before public bodies including meetings, and processing of plans, permits, etc. through those agencies.

HOURLY CHARGES

Hourly work will be billed at our current prevailing rates.

w:southway

SEP 6 1994

CANTON DROP FORGE

September 2, 1994

Mr. Keith Houseknecht
Canton Drop Forge
4575 Southway St. S.W.
Canton, Ohio 44706

RE: Profiling of Pond Sludges

Dear Mr. Houseknecht:

Thank you for the opportunity to provide you and Canton Drop Forge with our proposal for job tasks associated with the profiling of pond sludges that remain following evacuation of a majority of the emulsified oil in the settling pond at the southwest corner of your Southway Street facility.

Per our telephone conversation yesterday, I have discussed this issue with both our Environmental Division Manager and our Landfill Division Manager, both of whom agree to perform the following services at no charge to Canton Drop Forge:

- Establish a grid system to be used as a point of reference for data acquisition and future site work.
- Provide personnel and equipment required to effectively transverse the pond.
- Utilize a pontoon specifically designed for acquiring liquid, sludge and solid phase sample material.
- Utilize a manually-operated calibrator in an attempt to determine the location consistency and volumes of sludges that exist in individual grids within the pond.
- Obtain a maximum of 40 sludge samples from the pond, assuming grids approximating 500 sq. ft. in size.
- Provide Canton Drop Forge with pond mapping indicating the approximate mass contours and estimated depths of sludges.

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SEP 6 1994

CANTON DROP FORGE

Mr. Houseknecht
September 1, 1994
Page 2

- At the direction of Canton Drop Forge, assist in compositing sample materials and properly identify same.
- Provide Canton Drop Forge a written summary of all personnel, equipment, and supplies utilized during on-site activities.

We would ask Canton Drop Forge to assist with this project in the following manner:

- Provide Kelchner any current information with respect to the pond prior to our initiating site work.
- Assure Kelchner Environmental an opportunity to submit a proposal for any and all future work associated with the pond and an assurance that our proposal will be given fair consideration.
- Allow Kelchner personnel access to restroom facilities and portable water during our time on site.
- Provide a Canton Drop Forge Site Manager, who can oversee the site work and make decisions relative to the compositing of samples and identification of sludge matrices.
- Provide Kelchner with a report of the data and analytical results acquired as a result of this project.

As we discussed via telephone, you will receive no billing for these services. Rather, when our proposal for additional pond abatement work is submitted, there will appear a separate line item reflecting the cost of these services as a part of our competitive bid. Please note that our proposal does not include the job tasks or costs associated with the selection of an analytical laboratory, sampling supply's, transportation of samples to the selected laboratory, or the analysis performed on the sampled material.

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CANTON DROP EIRIS

Mr. Houseknecht
September 1, 1994
Page 3

We trust that this proposal is received in the same spirit of mutual cooperation in which it is issued.

Respectfully,

KELCHNER ENVIRONMENTAL, INC.

Randy Farneth /RF

Randy Farneth
Corporate Accounts Manager

RF/dko

CDF000852

(4) List of parameters and analytical methods.

TABLE 1

Analytical Group	Constituent	Analytical Method For Soil Samples	Analytical Method For Water Samples
1. GASOLINE (Motor Gasoline, Aviation Gasoline, and Gasohol)	Benzene	EPA Method 8020	EPA Method 602
	Toluene	EPA Method 8020	EPA Method 602
	Ethylbenzene	EPA Method 8020	EPA Method 602
	Total Xylenes	EPA Method 8020	EPA Method 602
	Total Petroleum Hydrocarbons	EPA Method 8015	Not Applicable (MODIFIED)
2. MIDDLE DISTILLATES (Kerosene, Diesel Fuel, Jet Fuel, and Light Oils)	Benzene	EPA Method 8020	EPA Method 602
	Toluene	EPA Method 8020	EPA Method 602
	Ethylbenzene	EPA Method 8020	EPA Method 602
	Total Xylenes	EPA Method 8020	EPA Method 602
	Polynuclear Aromatic Hydrocarbons	EPA Method 8100 (MODIFIED)	EPA Method 610
	Total Petroleum Hydrocarbons	EPA Method 418.1	Not Applicable
3. Used Oil and Unknowns	Volatile Organic Aromatics	EPA Method 8240	EPA Method 624
	Total Petroleum Hydrocarbons	EPA Method 418.1	Not Applicable
4. Heavy Fuel Oils and Lubricating Oils	Total Petroleum Hydrocarbons	EPA Method 418.1	Not Applicable
5. Other Compounds	Not Applicable	Consult With The Fire Marshal	Consult With The Fire Marshal

(E) ACTION LEVELS

(1) Upon completion of a site check pursuant to paragraph (D)(3) of this rule or a closure assessment pursuant to paragraph (K) of rule 1301:7-9-12 of the Administrative Code, owners and operators shall determine the appropriate action levels for the UST site using the scoring system and action level table set forth in paragraph (E)(3)(i) of this rule. If contaminant levels at any location on the UST site, as determined by the site check or closure assessment, exceed the action levels determined for the UST site, owners and operators shall proceed to

conduct a site assessment pursuant to paragraph (I) of this rule.

(2) If owners and operators have obtained laboratory analytical results from a study or survey of the UST site other than from a site check conducted pursuant to paragraph (D)(3) of this rule, a closure assessment conducted pursuant to paragraph (K) of rule 1301:7-9-12 of the Administrative Code, or a site assessment conducted pursuant to paragraph (I) of this rule, owners and operators shall conduct a site check pursuant to this rule if any such results exceed the appropriate action levels determined for the UST site using the scoring system and action level table set forth in paragraph (E)(3)(i).

(4) Action level table.

(i) Action levels shall be determined for the UST site by applying the total score calculated for the UST site pursuant to paragraphs (E)(3)(i) to (E)(3)(v) of this rule to the following table:

	CATEGORY 4	CATEGORY 3	CATEGORY 2	CATEGORY 1
TOTAL SCORE	>71	70-51	50-31	<31
Constituents level in soil:				
Benzene	.500 PPM	.335 PPM	.170 PPM	.006 PPM
Toluene	12 PPM	9 PPM	7 PPM	4 PPM
Ethylbenzene	18 PPM	14 PPM	10 PPM	6 PPM
Total Xylenes	85 PPM	67 PPM	47 PPM	28 PPM
Constituents level in ground water:				
Benzene	.005 PPM	.005 PPM	.005 PPM	.005 PPM
Toluene	1 PPM	1 PPM	1 PPM	1 PPM
Ethylbenzene	.700 PPM	.700 PPM	.700 PPM	.700 PPM
Total Xylenes	10 PPM	10 PPM	10 PPM	10 PPM
TPH level in soil:				
Analytical Group No. 1	600 PPM	450 PPM	300 PPM	105 PPM
Analytical Group Nos. 2, 3, and 4	1156 PPM	904 PPM	642 PPM	380 PPM

2(b)
3

TABLE 1: LAGOON #2 LAB ANALYSIS SUMMARY

Parameter	Sample #	1	2	3	4	5	6	7	Regulatory Limit
Reactive Cyanide (ppm)		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Reactive Sulfur (ppm)		<25	<25	<25	<25	<25	<25	<25	
Flash Point (°F)		>140	>140	>140	>140	100	<140	<140	
pH		7.65	7.77	7.47	7.73	7.77	5.88	5.88	
Paint Filter		Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	
TPH (418.1) (ppm)		13,981	13,532	33,204	14,594	57,536	31,243	303,459	105
PCB's (ppm)		<2	<2	<2	<2	<2	<2	<2	
Cresols (ppm)		<0.02	<0.02	<0.1	<0.02	<0.1	<0.1	<0.02	200
1, 4-Dichlorobenzene		<0.02	<0.02	<0.1	<0.02	<0.1	<0.1	<0.02	7.5
2, 4-Dinitrotoluene		<0.02	<0.02	<0.1	<0.02	<0.1	<0.1	<0.02	0.13
Hexachlorobenzene		<0.02	<0.02	<0.1	<0.02	<0.1	<0.1	<0.02	0.13
Hexachloro-1, 3-butadiene		<0.02	0.50	<0.1	<0.02	<0.1	<0.1	<0.02	0.5
Nitrobenzene		<0.02	<0.02	<0.1	<0.02	<0.1	<0.1	<0.02	2
Pentachlorophenol		<0.05	<0.05	<0.25	<0.05	<0.25	<0.25	<0.05	100
Pyridine		<0.05	<0.05	<0.25	<0.05	<0.25	<0.25	<0.05	5
2, 4, 5 Trichlorophenol		<0.05	<0.05	<0.25	<0.05	<0.25	<0.25	<0.05	400
2, 4, 6 Trichlorophenol		<0.05	<0.05	<0.25	<0.05	<0.25	<0.25	<0.05	2
Hexachloroethane		<0.02	<0.02	0.1	<0.02	<0.1	<0.1	<0.02	3
Benzene		<0.005	<0.005	<0.005	<0.02	<0.005	<0.005	<0.005	0.5
Carbon Tetrachloride		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.5
Chlorobenzene		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	100
Chloroform		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	6
1, 2-Dichloroethane		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.5
1, 1-Dichloroethane		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.7
2-Butanone (MEK)		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	200
Tetrachloroethene		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.7
Trichloroethene		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.5
Vinyl Chloride		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2
Silver		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	5
Lead		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	5
Cadmium		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	1
Chromium		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	5
Arsenic		<0.001	0.001	0.001	<0.01	<0.001	<0.001	<0.001	5
Mercury		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.2
Barium		19.0	12	<0.1	20	19	4	<0.1	100
Selenium		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	1

Full Laboratory Analysis in Appendix B